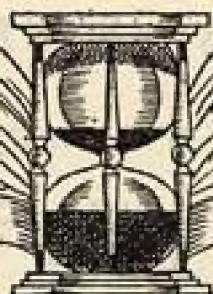


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October 1938





THE
PERKINS BULL
HISTORICAL SERIES



BY
WILLIAM PERKINS BULL, K.C., LL.D.
T O R O N T O

FROM REVOLUTION TO REPULSION
FROM QUEBON RIGHTS TO MONTREALS TAKEN
FROM REBELLION TO CONFEDERATION
FROM COLONY TO COUNTRY

FROM THE BONE TO BRAMPTON

FROM MEDICINE MAN TO MEDICAL MAN

FROM SYRACUSA TO OWEN

FROM ROCK TO CURRIE

FROM SYRACUSA TO ALBANY

FROM HUNTINGBROOK TO EAGLE

FROM APPALACHIA TO KEELE

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FROM MACDONELL TO MCCORD

FROM

FROM

FROM PUSHERIE TO HAMLET

FROM

FROM RATTLESHAKE MOUNT TO HOCKEY

FROM PAGANISM TO DAVENPORT UNITED

CHINDAGUAGA
TORONTO TALK

ALBION

FROM OF TORONTO
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FROM

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FROM HEMISPHERE TO HAMLET



Wm Perkins Pennell

THE BRAMPTON
PUBLIC LIBRARY

FROM AMPHIBIANS
TO REPTILES

SHY SWAMP-DWELLERS IN
STUDY, PICTURE AND
LEGEND



By Wm. Perkins Bull

The PERKINS BULL FOUNDATION
GEORGE J. McLEOD, LTD., *Toronto, Canada.*



9/85

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To Wm. Perkins
My Second Son
An Erstwhile Lover of
Amphibians and Reptiles



WM. PERKINS BULL JR.



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From one of the author's school readers

RATTLESNAKE



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From Cassell's Popular Natural History

COMMON TREE-FROG

AN INFORMAL FOREWORD

WE SAT under an old snow apple tree in my garden reminiscing. Professor W. A. Parks, a college class-mate, impressed on me the importance of having the Perkins Bull Historical Series include treatises on the geology, flora, and fauna of Peel. In a series of discussions the work was outlined and the foundation of *From Amphibians to Reptiles* was laid.

But while delving into the county's past, historic and prehistoric too, I had as a matter of course gathered information that might be used in a more or less scientific treatise. Help with technical terminology and scientific data generally was assured should I attempt the task.

Without the whole-hearted assistance of Mr. Eugene Bernard Shelley Logier, this story of Peel's amphibians and reptiles could hardly have been written. Pen and ink illustrations bearing Logier's name or initials were specially drawn by him for the Perkins Bull Historical Series. Professor John Richard Dymond, M.A., made available the files of the Royal Ontario Museum of Zoology and vouchsafed guidance and advice. Professor Fred Landon, M.A., of the University of Western Ontario, also kindly assisted.

Thanks are due also to J. L. Baillie Jr., R. D. Black, E. G. Carlaw, G. F. Dippie, F. H. Emery, Vera Jones, C. E. Hope, F. J. Kirby, W. J. Le Ray, R. V. Lindsay, D. A. MacLulich, C. Middleton, Miss O. Monkman, G. E. Payne, F. L. Rowlinson, A. Rutledge, R. J. Rutter, T. M. Shortt, L. H. Sinclair, Mrs. E. W. Skelton, H. H. Southam, J. M. Speirs, W. B. Stallworthy, and W. R. Watson Jr. Among Peel friends who have generously assisted are Wallace Duffy, H. R. Ivor, Aaron Laidlaw, J. McClelland, Dr. James M. McKay, and Col. A. E. Taylor. Throughout the text, observations made by these kind helpers are indicated by their initials.

It is a pleasure to acknowledge the thoughtful introductory note by A. D. Robertson, M.A., Professor of Zoology at the University of Western Ontario.

I am grateful for the permission of the Royal Ontario

Museum of Palaeontology to reproduce the chart showing "Divisions of Geological Time".

Pains have been taken to secure accurate zoological descriptions and reliable observations as a backbone for this book. Historical and picturesque digressions, also legends and rhymes, have been introduced to enliven the story and to stimulate the beginner.

Small figures throughout the text refer to the Appendix.

If teachers, librarians, busy housewives, curious children, and indeed the public generally, accord *From Amphibians to Reptiles* as fine a reception as they gave *From Hummingbird to Eagle* and *From Spring to Autumn*, I shall be well content.

WM. PERKINS BULL

Lorne Hall,
Toronto.



A. W. Robertson

AN INTRODUCTORY NOTE

ONCE more Mr. William Perkins Bull issues a delightful contribution to historic lore in a further account of early days in Peel. His Historical Series includes a number of books dealing with interesting phases of the natural history of the county. These are charming in their personal touch and have included such beautiful things as *From Spring to Autumn* and *From Hummingbird to Eagle*. In *From Amphibians to Reptiles*, Mr. Bull recounts in conversational vein records coming down from the sturdy human pioneers, tales of their contact with other pioneers, those backboneed animals which, through geological ages, made the great migration from an aquatic to a terrestrial life and established themselves as permanent land-dwellers. It is interesting to biologists to read these records, and important to the science of biology to have them.

The story is indeed enjoyable, and is told in a manner which charms us scientists, accustomed to stories of animal life told in other and more stilted language. These Perkins Bull books serve a real need, presenting as they do to a non-technical audience a really interesting field of human knowledge.

A. D. ROBERTSON



From Backwoods of Canada
BULLFROG

PROLOGUE

"THE CREEPING PEOPLE"

*"The toad has waked hungry and hunts the lawn
At a toad's pace, with leopard's eagerness.
The turtles stretch out and turn
Their long necks in the first cold sun;
The nerves of the water-snake tremble and burn
Driving him upward out of his old skin."*

—MARIE DE L. WELCH

GOD made "everything that creepeth upon the earth after his kind: and God saw that it was good,"¹ yet from earliest times mankind generally has abhorred the cold-blooded creatures that ever and anon start so stealthily and fearfully from under his feet.

The pentateuch tells how in the Garden of Eden man was baffled by the subtle wisdom of the serpent. Milton pictures Satan as "Squat like a toad, close at the ear of Eve".² Is there any folk-lore in which these and kindred orders do not appear as objects of suspicion and dread?

Under the joint categories of "whatsoever hath no fins nor scales in the waters" and "creeping things that creep upon the earth, . . . whatsoever goeth upon the belly, and whatsoever goeth upon all four or whatsoever hath more feet among all creeping things that creep upon the earth",³ Mosaic law bans both amphibians and reptiles as unclean. Among prohibited animals, lizards and tortoises are specially proscribed. Any person touching their dead bodies, any sack, vessel, or oven, polluted by them, even any food or drink the container of which has been in contact with their bodies, is declared unclean.

A similar taboo must have been in force among the Romans, for Pliny warns his readers that if a salamander "only touches with its foot the wood upon which bread is baked",⁴ all who partake are poisoned.

Among the revolting plagues Moses brought down upon Pharaoh were swarms of frogs, which came into house, bedchamber, oven, and kneading-trough. When they died, men "gathered them together upon heaps, and the land stank".⁵

Mediaeval naturalists, as Boulenger points out, be-

lieved that newts and toads spat venom. In *Macbeth*, Shakespeare ascribes to the terrible witches' brew such contents as "Eye of newt and toe of frog".⁶ As long as wizardry flourished, frogs, toads, snakes, and lizards served not only to furnish ingredients for magic potions, but often as "familiars" or physical manifestations of demon coadjutors.

During the Renaissance and even later, men believed amphibians and reptiles unable to reproduce their kind. All were thought to be "engendered from rain showers like frogs". It was also believed that women's long hairs turned into snakes.⁷ Perhaps this superstition arose from the classical myth of Medusa. This monster was once a beautiful maiden whose ringlets the goddess Minerva spitefully changed into hissing snakes. No one could look on Medusa without being turned into stone.

PART I
WHAT ARE AMPHIBIANS?

"O flesh, flesh, how art thou fishified!"
—WILLIAM SHAKESPEARE

AMPHIBIANS, the first land-dwelling vertebrates, bridge the gulf between fishes and reptiles. They are a distinct class, although often confused with reptiles because they develop from fish-like into reptilian forms.

Whether their skins be smooth and moist or dry and warty, amphibians are devoid of scales. On the other hand, the Soft-shelled Turtle has a few on its limbs, while other reptiles of Peel latitudes are covered with scales.

Furthermore, after amphibians' soft eggs are deposited, generally in water, varying periods of incubation are followed by a natatory stage, with gills and tails, as tadpoles. They then acquire the breathing and hopping equipment that fits them for life on land. Reptiles, on the contrary, emerge from eggs as miniature adults.

Passing through the gilled larval stage, amphibians, true to their name, live in two worlds, the aquatic and the terrestrial. Boulenger amusingly defines *amphibian* as "an elastic term commonly regarded as implying an animal that was unable to live on land, and apt to die in the water—one, in fact, dependent upon both environments in order to exist".⁸

Amphibians⁹ were the first creatures to have voices,¹⁰ and they exercised them with care. Even in the 20th century Anno Domini, frogs croak with mouths shut and nostrils closed. If the "croakings" of prehistoric amphibians were proportionate to their size, palaeozoic¹¹ swamps surely resounded with alarming roars. Yet it may be that these monsters were as quiet as Mudpuppies.

It is not easy to secure an exhaustive list of amphibians indigenous to any restricted area. Unlike birds, mammals, and fish, they fascinate few folk and repel many. Some are so elusive and secretive that they escape even the trained eye. Others, quite rare, occur only in isolated colonies and particularly favourable environments. Many species, once

plentiful, have been greatly reduced in numbers—some, indeed, exterminated—by such agencies as clearing and cultivation of land, drainage of swamps, and pollution of streams.

Lacking adequate historical records, the historian must inevitably omit many varieties of which he would fain treat, and which, in bygone days, have doubtless bred in his terrain. From Peel but fourteen amphibians, chiefly salamanders, toads, and frogs, have been reported.



WHERE AMPHIBIANS FLOURISHED

THE picture on the reverse of this page reproduces one of 450 or 500 original paintings and drawings in the Perkins Bull Collection, Brampton. Many pictures show the delightful haunts of reptiles and amphibians along the banks of Peel's lakes, marshes, and streams. Among such are: Browne's Peel Marsh, George A. Kulmala's Banks of the Credit River, Paul Kane's Indian Encampment, and James Blomfield's Mouth of the Credit.

SALAMANDERS

"One may not doubt that, somehow, Good
Shall come of Water and of Mud."

—RUPERT BROOKE

THE nomenclature of this group suggests legends of elemental spirits: sylphs of the air, gnomes of the earth, nymphs of the water, and salamanders of the fire.

Although most salamanders are inhabitants of temperate localities, the ancients believed them indifferent to heat, and, by choice, residents of active volcano craters.⁸ Accordingly, asbestos fabric was called "salamander's wool",¹¹ or "salamander's feather".¹²

Pliny declares this order was "so intensely cold as to extinguish fire",⁴ by mere contact, notwithstanding a surprising *contretemps* in which the subject of an experiment was burnt to powder.

Salamanders, with body temperature 45° or 50° below man's, might well be thought to remain unaffected by temperatures that would make human beings reel, but observations do not bear this out. Lizards, which to the layman closely resemble salamanders, can bask for hours in the sun without apparent discomfort. But sunshine parches the porous skin of most salamanders; hence they are crepuscular, and in day-time hide in bogs and under logs or stones.

The MUDDPUPPY, *Necturus maculosus*, is smooth and slimy, with a paddle-like tail flattened on the sides. It has three bushy, external gills or dark red filaments on each side of its head, and attains a length of about seventeen inches. Its brown or dark olive skin is minutely mottled, with a few scattered spots of deep blackish grey. Young Mudpuppies have a conspicuous light stripe along each side, from snout to tail tip.

This voracious feeder prowls about at night in search of worms, insects, crayfish, small fry, fish eggs, and molluscs. It greedily gulps a baited hook, so is sometimes caught by anglers, most of whom regard it as a "poisonous lizard".

Late in May it digs a sub-aquatic nest under some sheltering stone or board, to which, on pendant stalks, it affixes between 90 and 180 eggs. The female broods for approximately thirty-eight days. Sexual maturity is attained in about the fifth year, when specimens are eight inches long.

The Mudpuppy is common in sheltered, weedy places, along the lake shores, and in the streams of southern Ontario.

<i>Observed</i>	<i>At</i>	<i>By</i>	<i>Remarks</i>
18 Apr., 1931	Credit mouth	C.M.	13½ ins.



YOUNG NEWT
Red terrestrial form

The GREEN NEWT, *Triturus viridescens viridescens*, like the Mudpuppy, is four or five inches long and lizard-shaped. Its skin is finely wrinkled, and its tail, flattened on both sides, has a fin above and one below. An adult is green or brown, and sharply yellow beneath. Its body is speckled with black, while two rows of bright red spots border its back. This dainty creature is a popular aquarium salamander.

In April or May, the Green Newt lays on the leaves of under-water plants single eggs, which hatch in from two to four weeks. The larva spends three months or thereabouts in the water; then its external gills are replaced by lungs. It is bright orange or vermilion during three years or so of terrestrial life. Then it assumes adult garb. Thereafter, although a drier spot is required for hibernation, summers are spent in southern Ontario's weedy bays, ponds, and lakes.

The harmless Newt feeds on insects, crustaceans, and small clams. Its behaviour affords no explanation of the English yeoman's superstitions that newts caused rheumatism and paralysis of cattle by creeping over their legs, and that disease was brought on by drinking water from ponds where they lived.¹³

<i>Observed</i>	<i>At</i>	<i>By</i>	<i>Remarks</i>
24 May, 1923	Cooksville		R.O.M.
" " "	"	V. J.	Collected
19 July, 1931	Forks of the Credit	R.J.R.	Common
6 May, 1932	" " " "	R.V.L.	Several in limestone
		F.H.E.	pool
		H.H.S.	
	Sligo hill	J.M.S.	R.O.M.



ADULT NEWT
Green aquatic form

JEFFERSON'S SALAMANDER, *Ambystoma jeffersonianum*, and the SPOTTED SALAMANDER, *Ambystoma maculatum*, are each roughly seven inches long, with rudder-like tails and soft, moist skins, brownish or greyish black in colour, becoming paler underneath. The two rows of bright yellow spots along the back and tail of the Spotted are absent in Jefferson's, which usually shows some bluish speckling on its sides. The larvae of Jefferson's and the Spotted are indistinguishable.

These Salamanders, which feed on insects and worms, are at home in moist woodland shades, under or inside decaying logs, and under rubbish about the shores of lakes or ponds. Their eggs, laid in clumps of jelly attached to sub-aqueous twigs or grasses, hatch in two or three weeks. During a two-month larval period, spent in water, their food includes insects and crustaceans.

Observers seeking these species in their shy retreats will not find them spitting milky matter which induces leprosy,⁴ infecting fruit by creeping about trees,¹⁴ or, by sucking cows, preventing their ever giving milk again.⁷ Such superstitions have passed, together with belief in Sextius's recipe⁴ for an aphrodisiac of salamander in honey. Instinctive feelings of abhorrence too often remain, however, and although Jefferson's and Spotted Salamanders are common throughout lacustrine counties, few observations have been reported from Peel.

<i>Observed</i>	<i>At</i>	<i>By</i>	<i>Remarks</i>
Oct., 1934	Port Credit	F.J.K.	Adult <i>jeffersonianum</i> collected
	Cooksville		Larva R.O.M.

The RED-BACKED SALAMANDER, *Plethodon cinereus*, is dichromatic. One colour phase is uniformly blackish brown; the other displays a broad red or yellowish stripe down its four-inch back, from the head to the middle or tip of its cylindrical tail. The latter, being the commoner, gives the species its name.

The Red-backed, having no lungs, breathes through its smooth, moist skin. It evolved in a mountain brook habitat having swift currents in which the buoyancy of lungs was a disadvantage, so in the cold, well-aerated water these organs gradually gave way to skin respiration. Nearly all *Plethodontidae* live or pass their larval stages in cold, running water, and the few which have acquired terrestrial habits continue to depend on body-surface respiration.

In April, May, June, or July, grape-like bunches of from five to ten eggs each are placed in cavities in decaying logs. The larval stage is passed inside the egg while the female still broods. Both adults and larvae feed on small insects.

Red-backed Salamanders are found in any shady wood where there is enough trash on the ground to ensure cover and moisture.



RED-BACKED SALAMANDER

Observed	At	By	Remarks
June, 1923	Cooksville		2 taken
27 Apr., 1924	Port Credit	J.L.B.	4 or 5; also clump of 10 or 12 eggs
26 Aug., 1926	Credit river	E.B.S.L. W.J.L.	
5 June, 1927	Summerville	C.E.H. R.V.L.	3
29 Mar., 1929	Forks of the Credit	J.L.B.	3

Sept., 1930	Forks of the Credit	A.R.	1 in R.O.M.
1 May, 1932	Erindale	J.L.B.	4
6 May, 1932	Forks of the Credit	F.H.E.	30 taken; both
		R.V.L.	phases plentiful
		H.H.S.	
Apr., 1933	Caledon	C.E.H.	1 taken; in R.O.M.

FROGS AND TOADS

*"What a wonderful bird the frog are!
He ain't got no tail almost hardly,
When he yump, he fly; when he stand he sit down
Where he ain't got no tail almost hardly."*

—ANONYMOUS NORWEGIAN POET

FROGS and toads occur on all continents. Nine species, representing Toads, Tree-frogs, and Pond-frogs, have at all times been quite common in Peel.

Great numbers of frogs or "Canadian nightingales" lived in the ponds and ditches.¹⁵ Indeed, settlers in Upper Canada considered them a plague, and Peel old-timers quote ancestral stories dating from the 1830's, when "a deluge of frogs fell upon the land", in such numbers that their bodies, piled up under the blazing sun, "rotted and filled the air with poisonous vapors," much after the fashion of the Egyptian plague.¹⁶

To Aristotle it seemed plain that the living sprang out of the dead and the inanimate. Out of vinegar "came vinegar eels, out of dung came blow-flies, out of decaying fruit bees were born, and out of the rain-pool frogs spawned".¹⁷ The erroneous belief that "it rains toads or frogs or fishes" was doubtless due to the breaking up of a dry spell or to the fact that whirlwinds betimes sucked up the surface of a pond and spread it over a considerable distance. Hence, as Du Bartas points out, "Earth's green bed with stinking frogs is sometimes covered."

Immigrants commented on the size and vocal powers of contemporary batrachians. Since the late 1880's considerable interest has been aroused by a 21½-inch, 42-pound "frog" displayed in a glass case at the Barker House, Fredericton, N.B. Inquiry of a Saint John, N.B., newspaper elicited, in part, the following response:

"While legend concerning the Barker House frog . . . has been fostered as an advertising scheme and often is accepted as true by tourists, the 'freak' actually is made of wood and is not really a stuffed monster.

". . . Its unmarked body was supposed to have been found floating on the surface of a lake after poachers had dynamited there to obtain fish . . ."¹⁸

Another inquiry brought the information that:

". . . the frog . . . was a fraud, having been made at some time

as an advertisement for a particular kind of patent tablet, called '*Frog in your throat*'. It never was an actual living frog, though many people at the time believed it."¹⁹

But even the Barker House "frog" would have had to stand modestly aside for such giant specimens as apparently confronted early travellers in Upper Canada. Mrs. Jameson, though probably conservative enough in her statements, conveys an impression of their inordinate size and vocal powers:

"The other day, while walking near a piece of water, I was startled by a very loud deep croak, as like the croak of an ordinary frog as the bellow of a bull is like the bleat of a calf; and looking round, perceived one of those enormous bull-frogs of the country seated with great dignity on the end of a plank, and staring at me. The monster was at least a foot in length, with a pair of eyes like spectacles; on shaking my parasol at him, he plunged to the bottom in a moment."²⁰

The Bullfrog, with his sonorous "ker-junk", was Patriarch of the Pool. The Leopard Frog, Green Frog, and American Toad may also have been in evidence in the swamps of Toronto township and Chinguacousy. Their shrill chorus, added to the croaking of the Swamp Tree-frog and Spring Peeper, doubtless helped to enliven the long spring evenings.

*"Can these, indeed, be voices, that so greet
The twilight still? I seem to hear
Oboe and cymbal in a rhythmic beat
With bass-drum and bassoon; their drear
And droll crescendo louder growing,
Then falling back, like waters ebbing, flowing,—
Back to the silence sweet!"*

—FLORENCE EARLE COATES

Ever since the days of Aristophanes,²¹ frogs have been literary heroes. There comes to mind the fabled bullfrog that burst while trying to puff itself up as big as an ox, the frogs that changed King Log for King Stork, and their kindred in *Rumanian Bird and Beast Stories*, that were frightened by a hare. Bion's saying, "that though the boys throw stones at frogs in sport, yet the frogs do not die in sport but in earnest",²² has been handed down in the proverb, "What's fun for the boys is death for the frogs."²³ "The Frog Prince"²⁴ and the Froggy who "would a-wooing go"²⁵ are among early nursery acquaintances. At the other extreme of time, the modern poetess, Emily Dickinson, takes this amphibian as archetype of those who "tell the world":



Courtesy Miss Elizabeth Maxwell

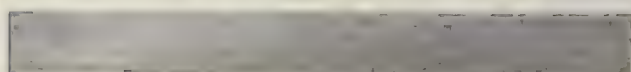
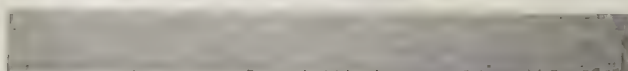
MAXWELL FISH-POND

Lot 14, 2nd concession west, Caledon



Courtesy Miss Elizabeth Maxwell

ALLAN MAXWELL FISHING



Courtesy S. A. White, Stuart L. Thompson, and A. R. Capreol

SCENES IN THE VALLEYS OF THE RIVERS CREDIT AND ETOBICOKE

1, 4 and 6 The Etobicoke, 2, 3 and 5 The Credit

"How dreary to be somebody!
 How public, like a frog
 To tell your name the livelong day
 To an admiring bog!"²⁶

Wet weather will often make lively otherwise dormant frogs. Those familiar with Mark Twain's famous "Jumping Frog"²⁷ will be curious to know how far the average untrained and unpampered batrachian can leap. The United States Department of Agriculture, Washington, some time ago averred:

"A frog under any conditions can jump three feet. Under deep emotion he can jump five feet, and in a real brain storm with firm footing he can jump six feet."²⁸

When Streetsville was "the metropolis of Peel", Brampton was known to Toronto township aristocrats as "that frog pond" or "the frog-pond hamlet".³⁰ "Daddy" Elliott's pasture field,³¹ later the beautiful lawns of his son Matthew Mitchell and of his son-in-law Kenneth Chisholm,³² and now Gage Park,³³ was a low-lying beaver meadow, overgrown with bulrushes and loud with batrachian symphonies. The marshy flats of the Etobicoke extended up the Centre road to the Castle and across to the Crescent. Indeed, the whole town site was still the playground of the crooked creek.

Aaron Laidlaw's²⁹ auditory record, covering the period 1917-28, shows that these spring minstrels are first heard in Peel between 17th March and 13th April, an average date being 30th or 31st March.

Frogs, huddled together in great numbers, hibernate deep in muddy bottoms of ponds and sluggish streams. Claims of finding them still alive, although for years hermetically sealed in rock, coal, or similar substances, cannot be accepted without misgivings, since efforts to keep them alive when artificially insulated have not been successful.

About 400 years ago a certain pseudo-scientist, Albertus Magnus, gave several extraordinary bits of misinformation about frogs, notably the following:

"That a woman may confess what she has done:—Catch a live Water-frog, and take out its tongue, and put the Frog back into the water, and put the tongue over the region of the woman's heart while she is asleep, and when she is questioned, she will tell the truth."³⁴

This amphibian also figures in complicated spells cal-

culated to ensure wifely fidelity.⁴

Frogs and toads are very useful, though not quite in the ways the ancients supposed. They are to some extent pond scavengers and, as they devour insects and slugs, toads are specially valuable in gardens.

The AMERICAN TOAD, *Bufo americanus*, has short legs, a thick body, and a large, kidney-shaped swelling on each shoulder. Its dry, warty skin, greenish or reddish brown, has irregular black blotches and a light stripe down the mid back. The drab yellow underparts are mottled with brown or black. Adults have a maximum head and body length of some four inches.

Toads' eggs, laid in strings of jelly among grasses and weeds of ponds, lagoons, and quiet streams, hatch in four to twelve days. The tadpole stage lasts approximately six weeks, a couple of years later lungs replace gills, and after five years on land toads are fully grown.

In spring and early summer—the breeding season—males call from the water in prolonged trilling notes before going ashore for the rest of the year. As Marie de L. Welch says of them:

"Not the gold eyes alone
Tell of a toad's worth,— . . .
They are good as stones,
Lovely as clods of earth . . .
All night they will sing,
Sharp and silver, out of spring."³⁵

Common in thin bush land and around southern Ontario farms and gardens, the American Toad spends its nights searching for insects and earthworms. Samuel Thompson mentions toads which, like Mrs. Jameson's frogs, were able to swallow mice and young ducks, but they in turn fell victims to snakes.

"Pioneers used them as fly catchers attracting the flies to the floor by sprinkling sugar, when the toads would devour the flies and leave the settlers to enjoy quiet rest . . ."³⁶

Toads eat mosquitoes, caterpillars, and grasshoppers with a relish similar to that with which skunks devour toads.

Among toad myths are the beliefs that they bring bad luck and produce warts. In Shakespeare's day Bartholomew described the toad as a venomous frog, in whose right side "is a privy bone that cooleth someddeal seething water",³⁴ while a corresponding bone on the left side heated cold water and inflamed desire. According to Pliny, toads assuaged love.⁴ A contemporary of Bartholomew,³⁷ assures his readers that a toad, placed in a new earthen pot and

buried in a corn-field, will protect it from harmful storms. Another superstitious fancy is evinced in Shakespeare's lines:

"Sweet are the uses of adversity,
Which like the toad, ugly and venomous,
Wears yet a precious jewel in his head"³⁸

Ancient and mediaeval magic-mongers and "unnatural" historians have left many quaint instructions as to how this jewel may be obtained.

<i>Observed</i>	<i>At</i>	<i>By</i>	<i>Remarks</i>
19 Aug., 1926	Cooksville	E.B.S.L. W.J.L.	R.O.M.
28 Apr., 1932	Clarkson	J.L.B.	Few
1 May, 1932	Erindale	"	"
31 July, 1932	Forks of the Credit	C.E.H.	1
3 Oct., 1932	Huttonsville	G.E.P.	1 in R.O.M.

The SWAMP TREE-FROG, *Pseudacris triseriata*, although seldom reported, must be common in Peel in both spring and autumn. This dainty amphibian is only about an inch long. The tips of its fingers and slightly-webbed toes are adorned with minute suction disks. A typical specimen may be of any colour from pale flesh to dark brown, with three dark stripes running from the snout through the eye and along each side. The underparts are yellowish white.

Mrs. Jameson describes the Swamp Tree-frog's "piping squeak"³⁹ which, before the low-lying lake-shore district was properly drained, must have been well known along Dundas street.

In April, the breeding season, males emit noisy, high-pitched, ascending trills of great carrying power. Small clumps of jelly-like eggs are attached to under-water grasses or plants. They hatch in about two weeks and the larval period lasts roughly two months.

This well-known insect-eater frequents swamps, ponds, and damp woods, yet the Swamp Tree-frog, a poor swimmer and climber, spends most of its time out of the water.

<i>Observed</i>	<i>At</i>	<i>By</i>
12 Apr., 1931	Clarkson	J.L.B.
3 Oct., 1931	Erindale	W.R.W.
28 Apr., 1932	Clarkson	J.L.B.
1 May, 1932	Erindale	"

The SPRING PEEPER, *Hyla crucifer*, though only about an inch long, is rather stout, and the disks on its fingers and half-webbed toes are moderately large. Its hue varies from pale yellow or flesh colour to dark brown. A dark V appears between the eyes and a dark X on the back. The underparts are yellow.

Spring Peepers, plentiful throughout southern Ontario, dwell in marshes, damp woods, orchards, or gardens, and feed on small insects. Being good climbers, they are often found in bushes and trees.

In April or early May, the breeding season, males utter a series of short, high-pitched whistles. For mating they resort to ponds and marshes, wherein eggs are laid singly and attached to low-growing water-weeds. These hatch in six to twelve days, when a larval period of a couple of months ensues.

<i>Observed</i>	<i>At</i>	<i>By</i>	<i>Remarks</i>
27 Apr., 1924	Port Credit	J.L.B.	
12 Apr., 1931	Clarkson	"	
3 Oct., 1931	Erindale	W.R.W.	Hundreds; also 3 on 17 Oct.
28 Apr., 1932	Clarkson	J.L.B.	
15 May, 1932	Forks of the Credit	C.E.H.	Heard
16 Sept., 1932	" " " "	G.E.P.	1 in R.O.M.
	Heart lake	J.M.S.	



SPRING PEEPER

The TREE-TOAD, *Hyla versicolor versicolor*, also called the Tree-frog, is a squat creature about two inches long. Its skin is comparatively dry, and large suction disks tip the fingers and toes, which are webbed nearly to the tips. It changes to green, grey, or brown, to match its surroundings, but to effect such serious transformation requires over an hour. A century ago an anonymous traveller wrote:

"The Tree Toad changes in color to that which it occupies; from nearly white to almost black; making a noise like an English quail." ⁴⁰

A large, dark patch, usually star-shaped, may disappear from the back in light colour changes, as also may dark bars from the limbs. Although it hibernates in muddy bottoms of marshes or lakes, yet from early spring to autumn this alert, agile insect-eater spends most of its time in trees and bushes. It will stay for weeks—even months—in one tree, eating flies, beetles, and caterpillars.

The Tree-toad is more active before rain, when its hoarse croakings can be heard a mile or two away; as breeding progresses males make particularly merry in the water.

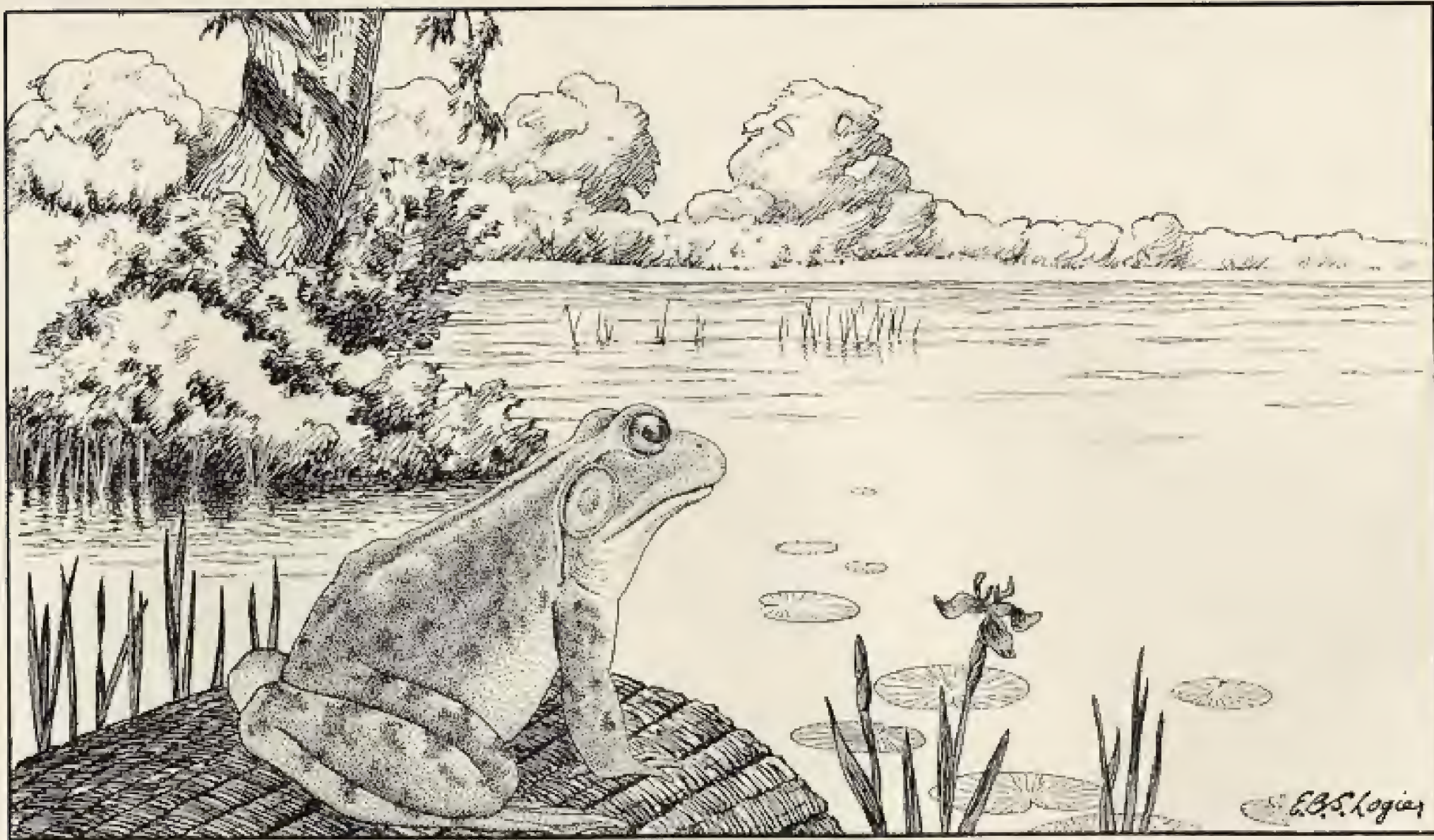
Eggs, laid in clumps of jelly during May on weedy ponds, take four to five days to hatch. A two-month larval period is spent in water, after which an additional four years are needed to develop a full-grown breeding adult.

The secretive Tree-toad, one of the most interesting and beautiful of batrachians, occurs in moderate numbers throughout southern Ontario.



COMMON TREE-TOAD

<i>Observed</i>	<i>At</i>	<i>By</i>
1924	Cooksville	O.M.
9 Oct., 1931	Erindale	W.R.W.



BULLFROG

The BULLFROG, *Rana catesbeiana*, largest Canadian representative of its family, attains a length of between seven and eight inches. Its skin is moist and its tuberculate back lacks the folds found along each side of most Ontario frogs of this genus.

Its greenish brown colour is often marbled with dark brown or black; the underparts are yellowish white, with or without mottling; the limbs are spotted or barred. Toes are webbed to the tips, except the fourth toe, of which the last joint is free.

The Bullfrog feeds on any prey it can swallow, such as fish, frogs, turtles, snakes, waterfowl, crayfish, and insects.

Throughout most summer nights, the Bullfrog's deep bass croak is audible. It is said to have been so called because its voice was thought to resemble that of a bellowing bull. Males are particularly vociferous during breeding season. Readers generally will agree with the apostrophe:

"To a Bullfrog

"Sons of the swamp, with lungs of leather.

"Twill soon be time to croak together."⁴¹

In June or July, its eggs, laid in large floating masses of jelly, are hung on brush. They hatch in about four days, but the tadpole period lasts a couple of years.

Apparently very common of yore, the species is no longer abundant. It does not thrive in thickly settled regions nor in shallow, meandering streams; it prefers quiet, deep lakes and rivers. Moreover, as bullfrogs' legs are in demand by epicures, pot-hunters have seriously reduced its numbers. Indeed, in 1868, Orangeville merchants advertised "a hundred kegs of the noted Waubuno bull frogs . . . all ready for table use".⁴²

The docile Bullfrog is easily tamed and is said to make a charming pet that will live in captivity thirty years and more.

Observed	At	By	Remarks
July, 1927	Mouth of the Credit	J.R.D.	R.O.M.
3 July, 1932	Huttonsville	C.E.H.	1 in R.O.M.
8 July, 1932	Erindale	J.L.B.	Heard
	Heart lake	J.M.S.	

The GREEN FROG, *Rana clamitans*, four inches or more in length, has moist, rough skin, with conspicuous lateral folds. Its feet are webbed, but the last two joints of the fourth toe are free. As a rule, from bright green on head and shoulders, its back is shaded downwards to brown, with small, irregular dark spots. The limbs are barred and spotted and the yellowish-white underparts are sometimes marbled with grey.

Insects, small fish, and crustaceans appease the hunger of this clamorous creature, which croaks summer-long, but is noisiest at night during the mating season. In late May or June a floating, transparent film of eggs swings from brushwood and plants, and hatches in from three to seven days. The tadpole stage requires a year or more.

This species should be common around the lakes, large ponds, streams, and springs of southern Ontario.

Green Frogs were familiar in Peel during the eighties and nineties, and it was probably these, rather than the larger and more succulent Bullfrogs, which made enjoyable the frying-pan picnics of Bramptonian youths in those decades. Amid the cat's-tails and other weeds along Etobicoke flats, young anglers like John McCulla,⁴³ Jim Hosie,⁴⁴ Arthur Clarke,⁴⁵ and Jim Brown⁴⁶ would fish sometimes with spears provided by the local blacksmith, scoop with their nets, or let down home-made hooks baited with worms or even with bits of old red flannel—easier to come by then than now! No restaurant furnished such frogs' legs; no deep-sea fisherman came home in greater triumph after his catch.

Perhaps the sport became too popular. At any rate, few Green Frogs are now found around Brampton, and most formal records of this species have been made farther south in the county.

<i>Observed</i>	<i>At</i>	<i>By</i>	<i>Remarks</i>
24 May, 1923	Cooksville	V.J.	Taken
Aug., 1926	"	E.B.S.L.	2 taken
June, 1927	Port Credit	J.R.D.	
Aug., 1932	Caledon	C.E.H.	
	Mimico	E.B.S.L.	Tadpoles

The PICKEREL FROG, *Rana pulustris*, is about 3½ inches long with ¾-webbed toes. A double row of rather close-set, squarish, dark brown spots, flanked by smaller spots, patterns its back and sides. The soft, damp, leaf-brown skin falls between conspicuous lateral folds into an extra pair of smaller folds. Limbs are barred and blotched. A white chest and yellow belly distinguish the Pickerel from the Leopard Frog. It feeds on insects, small crustaceans, and snails.

In April or May, males break their eleven months' silence with a hoarse croaking which announces the arrival of their mating season. In late spring eggs are laid in clumps of jelly. They are frequently attached to submerged sticks or aquatic plants, in cool ponds, ditches, springs, and streams, the preferred habitat of this species. From eleven to twenty-one days later the tadpoles begin their three-month development.

Observed	At	By	Remarks
27 Apr., 1924	Port Credit	J.L.B.	
9 Oct., 1932	Caledon	C.E.H.	R.O.M.
6 June, 1933	"	"	"



PICKEREL FROG

The LEOPARD FROG, *Rana pipiens*, is not more than about $3\frac{1}{2}$ inches long. Its sleek, clammy skin lies in well-marked lateral folds, usually green or brown with two rows of large, dark brown spots on the back and smaller spots on the sides. Its limbs are barred and toes $\frac{3}{4}$ -webbed. Underparts are white or yellowish.

Raucous-voiced males are heard most commonly in April and early May, when clumps of translucent eggs are being deposited on slimy under-water vegetation. In from thirteen to twenty days tadpoles appear. This stage lasts for two or three months, and is aptly described by Peattie:

"The tadpoles in the quiet bay of the brook are now far past the stage of inky black little wrigglers attached by their two little sticky pads to any stick or leaf, merely breathing through their gills, and lashing with their hair-fine cilia. A dark brown skin—really gold spots mottling the black—now proclaims the leopard frogs they will become. Now the hunger of the open mouths is insatiable; a tadpole, when not resting in sheer exhaustion, will not (and I suppose could not safely) cease for one moment to eat. They all scrape the slime from the sticks and stones; they nibble the water weeds; they are launched upon life with all its appetites and delights and perils."¹⁷

Leopard Frogs, which feed on worms and insects, frequent ponds, streams, marshes, and sheltered bays, but—



LEOPARD FROG

doubtless impelled by hunger—often wander away into meadows.

<i>Observed</i>	<i>At</i>	<i>By</i>	<i>Remarks</i>
27 Apr., 1924	Port Credit	J.L.B.	25 or more mating & spawning
19 Aug., 1926	Cooksville	E.B.S.L. W.J.L.	R.O.M.
26 Aug., 1926	Erindale	J.L.B.	
28 Apr., 1932	Clarkson		
1 May, 1932	Erindale		
15 May, 1932	Forks of the Credit	C.E.H. T.M.S.	
23 June, 1934	Port Credit	W.B.S.	R.O.M.
4 Oct., 1934	Forks of the Credit	"	"

The WOOD FROG, *Rana sylvatica*, is only about two inches long. Its skin varies from smooth to slightly granular and the pale or dark brown back is often tinged with red or green. There is a dark, triangular blotch behind the eye, and lateral folds are conspicuous. Limbs are barred, and toes $\frac{3}{4}$ -webbed. The yellowish-white underparts may be mottled.

In springtime the noisy, high-pitched croaking of the males, otherwise silent, announces that Wood Frogs have resorted to ponds for spawning. Clots of clear-looking, sticky eggs appear, stuck to grasses or under-water brush, where they usually hatch in from two to three weeks. Then they are mere tadpoles for upwards of sixty days.

This frog, terrestrial rather than aquatic, is common in the shady woods and around the streams and ponds of southern Ontario.

<i>Observed</i>	<i>At</i>	<i>By</i>	<i>Remarks</i>
15 May, 1932	Forks of the Credit	C.E.H. T.M.S.	Also on 5 July & 28 Aug. C.E.H. took 1 on 5 Sept. for R.O.M.
31 July, 1932	" " " "	C.E.H. T.M.S.	



SPRINGFIELD ON THE CREDIT RIVER

THE picture on the reverse of this page reproduces one of 450 or 500 original paintings and drawings in the Perkins Bull Collection, Brampton. Peel's streams and rivers, habitats of reptiles and amphibians, are the subject of many of these. Among such are: Brigden's Holsteins on the Credit, George A. Kulmala's At the Mouth of the Credit River, and T. Mower Martin's Springfield on the Credit River.

The MINK FROG, *Rana septentrionalis*, is not as yet recorded in Peel, but it occurs at Lake Simcoe and around Kelly lake, a glacial water in King township, so there is reason to suppose it may yet be found in kindred localities of Caledon and Albion.⁴⁷

Roumanians have an extraordinary belief that "when the frog dies, the body shrinks into nothingness and disappears".⁴⁸ They explain this by a story that one of its remote ancestors made the Virgin Mary smile on the day of the Crucifixion.

"The frog asked her, 'Dear lady mine, what are you weeping and crying for?' And she replied, 'I am weeping and crying for my only son, whom they are killing now in Jerusalem.' And the frog replied, 'What am I to say; I have had ten children and nine were crushed to death by the wicked wheel of the carts, only one is left to his mother, a sweet darling and pet, a beauty.' When Mary heard the frog lauding her child, she said, 'Let me see that beauty of yours, just come out, little froggie, beloved darling of mother.' And there came out of the lake behind a little frog with its crooked legs and ungainly face, and with eyes staring out of his head. And when Mary saw that beauty she could not help laughing under her tears. And she said to the frog, 'Because thou hast made me smile in my grief, may thy body never rot when thou diest, and the worm never have a share in it.'"



From Backwoods of Canada
ORIOLE DEFENDING HER NEST

PART II

R E P T I L E S

*"When earth was young and lusty
In the steaming heat of spring
My fierce proud forebears prowled the shore
And tried the dragon wing . . .
Above their ponderous skeletons
There slinks across the land,
Crafty and mean, the man-machine
They could not understand."*

—BRAHAM FINNIE

I F AMPHIBIANS are often ignored, reptiles are frequently used to symbolize that which is spurned. "Snake in the Grass" has a sinister connotation. In common parlance it implies baseness and treachery, while the *Oxford Dictionary*₄₉ defines it as a "hidden danger or secret enemy". The same authority gives among its definitions of a reptile, "a mean grovelling person" or, in adjectival use, "mean and grovelling". An example of the latter use is "*the r. press*, subservient semi-official newspapers esp. in pre-war Germany". Yet this crawling race includes such haughty and ferocious creatures as crocodiles and giant snakes, and is of the same breed as some of those prehistoric monsters whose unearthed skeletons are seen mounted in museums.

SNAKES

*"A snake came to my water-trough
On a hot hot day . . .
To drink there . . .
And voices in me said, 'If you were a man,
You would take a stick and break him now and finish him off.'
But must I confess how I liked him,
How glad I was he had come like a guest in quiet . . .
And departed, peaceful, pacified and thankless,
Into the burning bowels of this earth?"*

—D. H. LAWRENCE

SCIENTISTS claim that the snake's unpopularity is due to Signorance and superstition. This reptile long seemed wonderful and terrifying because of the speed and silence of its movements, because of its power to rub off and leave inside out its old, worn, wrinkled skin, and because of the poisonous fangs with which many species are armed. For centuries it was alternately worshipped and despised.

Serpent worship played an important part in the world-wide heliolithic culture which preceded the development of individual civilizations. The first European visitors to North America found more or less wide-spread evidences supporting this view. Alexander Henry gives an example from among the Mississaugas in their north Huron home.⁵⁰

"I . . . discovered a rattle-snake . . . two feet from my naked legs . . . its head raised considerably above its body. Had I advanced another step . . . I must have trodden upon it.

". . . I hastened to the canoe, in order to procure my gun; but, the Indians observing what I was doing . . . begged me to desist . . . surrounded it, all addressing it by turns, and calling it their grandfather; but yet keeping at some distance. . . they filled their pipes; and now each blew the smoke toward the snake, who, as it appeared to me, really received it with pleasure. In a word, after remaining coiled, and receiving incense, for half an hour, it stretched along the ground in visible good humour. Its length was between four and five feet. . . at last it moved slowly away, the Indians following, and still addressing it by the title of grandfather, beseeching [it] to take care of their families during their absence, and be pleased to open the heart of Sir William Johnson, so that he might show them charity, and fill their canoe with rum.

"One added a petition, that the snake would take no notice of the insult . . . offered him by the Englishman, who would even have put him to death, but for the interference of the Indians."⁵¹

Aryans regarded the serpent as sacred. Among the Druids, one of the more impressive priestly amulets took

the form of the serpent's egg.⁵² Hermes, worshipped as the god of fertility, carried a rod entwined with two serpents. According to Peattie, the Hindu symbol for life was a serpent with its tail in its mouth:

"Intuitive old fellows, those Aryan brothers of ours, wise in their superstitions, like old women. Life, we discover, is a closed, nay, a charmed circle. Wherever you pick it up, it was already begun; yet as soon as you try to follow it, it is already dying."⁵⁷

Numerous fables of Aesop and others attest the greed, ingratitude, cruelty, and treachery of the snake, but the Roumanians believed it more sinned against than sinning.

Thus, for example, when the devil bored holes in the ark with his newly-invented gimlet, the snake agreed to stop them up for Noah with pieces of his tail provided that, when the flood subsided, he and his seed should get a human being daily for food. Later, when the patriarch was offering thanksgiving, the snake reminded him of his promise. Feeling that there were no human beings to spare, Noah threw the snake into the fire. Displeased by the stench, God scattered the ashes. Hence were born the blood-sucking fleas which, according to the fable, daily consume the equivalent of a human being.

In another Roumanian story the snake is pictured as a more innocent victim. A dog, running wild with a splitting headache, was directed by a snake to eat grass. This brought relief. In return the dog offered the snake a remedy for its headache. "Go and stretch full-length across the high-road . . . lie still for a while, and the pain is sure to leave you." When "the simpleton of a snake" took up its position on the roadway, a peasant with a stout cudgel beheaded it.⁴⁸

Formerly there existed the belief that a powder or wine compounded from snakes would restore lost youth. Similarly, Arnold de Villanova remarks casually: "No one denies that the stag is renewed by feeding on vipers and serpents".⁵³ A Renaissance writer gives a recipe in which snakes are put to the fantastic use of making men appear headless.⁵⁴ There is no obvious explanation for Lupton's statement that a water snake hung by the tail over water would, in order to slake its thirst, void from its mouth a stone. This, tied to the belly of a dropsy patient, would absorb the water and heal him.³⁷

All sorts of charms against snake-bite were current. A serpent dared not touch a naked man, and was poisoned by "a fasting man's spittle" or indeed by any man's. Pliny the Elder claimed human spittle put snakes to flight, as though they had been touched with boiling water, and destroyed them the moment it entered their throats.⁷

Madame d'Abrantes told of Bonaparte's experiences in Cairo with Psylli, a serpent-detector, called in to remove two serpents from his house. He enticed one from its hiding-place and caught it "in one hand, just below the jaw-bone, in such a manner as to oblige the mouth to open, when spitting into it, the effect was like magic: the reptile appeared struck with instant death."⁵⁴

Naturalists of other days list example after example of snakes' power to fascinate birds, squirrels, frogs, and other "small game". On 4th February, 1662, a Mr. Templer told Samuel Pepys and others at Lord Crew's of serpents that:

"In the waste places of Lancashire do grow to a great bigness, and that do feed upon larks . . . They observe when the lark is soared to the highest, and do crawl till they come to be just underneath them; and there they place themselves with their mouths uppermost, and there, as is conceived, they do eject poyson up to the bird; for the bird do suddenly come down again in its course of a circle, and falls directly into the mouth of the serpent; which is very strange."⁵⁵

Pepys's predecessors and contemporaries supply many such tales, and an interesting treatise, written in 1796 by Benjamin Barton, professor in the University of Pennsylvania medical school, deals seriously with the subject in *A Memoir concerning the Fascinating Faculty which has been ascribed to The Rattle-Snake; and other American Serpents*.⁵⁶ Modern science, however, declares all this but myth. Birds and mammals may stare with curiosity, but cannot be mesmerized.

Shakespeare makes a zoological blunder common in his day, saying, "Your serpent of Egypt is bred now of your mud by the operation of your sun: so is your crocodile".⁵⁷ Despite legends that snakes are metamorphoses of women's hair or "of the marrow of the ridge-bone [spine] of a dead man",⁷ these creatures reproduce in entirely normal fashion. Some lay eggs, others are viviparous. Yet, as



Although amphibians and reptiles are found throughout the county wherever conditions are suitable, indications on the map are confined to observations mentioned in the text.

Formerly --	now
Albion	BOLTON 15
Albion Mills	Allendale Mills
Barbertown	Creditvale
Bolton's Hollow	BOLTON
Bolton's Mills	"
Broddy's Cor's.	Broddytown
Buckstown	Palgrave
Buffy's Cor's.	Snelgrove
Bully Hollow	Huttonsville
Burrell's Hollow	Stanley Mills
Castor's Cor's.	Boston Mills
Charleston	Caledon
Church's Falls	Cataract
Clarkson's	Clarkson
Clarkson's Cor's.	"
Columbia	Coventry
Corbett's Mill	Inglewood
Craig's Cor's	Claude
Credit	Erindale
Credit Post	Port Credit
Credit Village	Indian Village
Dublin	Campbell's Cross
Dyer's Lake	Heart Lake
Edmonton	Snelgrove
Eldorado Mills	Eldorado Park
Ferris Park	Boston Mills
Fountain Hill	Dixie
Fountain Valley	Huttonsville
Frogville	Coleraine
Gardiner's Neighbourhood	Britannia
Gaffney's Cor's.	Tormore
Ganton	Harrison's Neighbourhood
Gleniffer	Cataract
Gore Mills	Stanley Mills
Graham's Cor's.	Grahamsville
Grantville	Wildfield
Grantville	Gooseville
Gribbin	Wildfield
Guy's Cor's.	Snelgrove
Hammondville	Sheridan
Harrison's Cor's.	Harrison's Neighbourhood
Harrisville	Cooksville
Humber	Claireville
King's Cor's.	McCharles
Man-ze-nah-ga-se-ba	Indian Village
Market Hill	Mono Mills
McNabb	Norval
McNabb's Mill	"
McNabbville	"
Milburn Mills	Centreville
Mount Hope	Castlederg
Mount Hurst	"
Mr Pleasant	Pleasant
Murphy's Cor's.	Caledon East
Newtown	Sand Hill
Newtown Hewitt	"
Paisley	Caledon East
Raux Credit	Credit R.
Riverdale	Inglewood
Riverdale Jr	"
Riviere aux Credits	Credit R.
R. aux Crédits	"
Salem	Broddytown
Salmonville	Terra Cotta
Sandy Hill	Burnhamthorpe
Scott's Lake	Inne's Lake
Shiloh	Cedar Mills
Snell's Lake	Heart Lake
Silver Creek	Caldwell
Snootown	Eldorado Park
Springfield	Erindale
Sydenham	Dixie
The Credit	Indian Village
Township No 1	Toronto Twp.
Troughton's Cor's	Alton
Tubtown	Belfountain
Williamstown	Alton
Wolf Den	Huttonsville
Woodell's Cor's	Woodhill
Woodhill	"

Brampton Side Rd	now	King's Highway No XII
(East of Centre Rd)		
Centre Rd or Hurontario St	now	No X
Dundas St	"	No V
Lakeshore Rd	"	No II
No 10 Side Rd	"	No VII
(West of Centre Rd)		



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E. Carson.

late as the mid nineteenth century, a visitor to Canada states:

"A lumberer one day, upon felling a tree, near Burlington Bay, discovered a knot of frozen particles in the centre of the trunk, which on exposure to the sun burst into being and flew away. A single hair drawn from the tail of a horse and thrown into a pail of water, I have known, in a fortnight, to become impregnated with life."⁴⁰

It was the general and firm belief among the author's school-day contemporaries that a hair from a horse's tail kept in a bottle of water would turn into a snake. Almost every back porch in Peel at some time or another had its jar and hair, covered carefully each night lest the change take place before morning and the snake escape.

A Simcoe county neighbour breaks into print to dispute Professor Dymond's⁵⁸ denial "that certain varieties of snakes, when danger threatens, swallow their young . . . in the face of twenty correspondents who have witnessed snakes swallowing their brood". His letter gives a profusion of details:

"Some years ago in Dufferin county, one bright day in July, while out for a walk, I suddenly heard a hissing sound proceeding from a four-foot snake that was lying in the path a few feet distant in front of me. The hissing had not continued more than a few seconds, when I observed numerous young snakes hurrying from all directions and quickly entering the wide-open mouth of the parent snake. When a part of her brood had entered I noticed an enlargement at a point in the old snake's body. When all had entered, this enlargement appeared to be fully twice the diameter of the rest of the snake.

"After all the young snakes had entered, and before the parent had time to get away, I killed it. And, after cutting it open, I removed sixty-two wriggling young snakes, measuring about three-sixteenths of an inch in diameter, and five or more inches in length."⁵⁹

Dymond, however, remains unconvinced, and the author can offer no confirmation from personal experience.

A snake's loosely-jointed skull bones enable it, however, to seize and swallow prey otherwise much too large. Its recurved teeth lodge in the victim's skin and prevent escape. Then the victim is gradually pushed into the throat, the elastic tissues of which expand and allow quick passage into the stomach, while the ribs, being unattached ventrally, spread to accommodate whatever the stomach receives. Almost all snakes are carnivorous, and their prey, which under natural conditions must be captured alive, is swal-

lowed whole. Thus small animals may arrive in a snake's stomach practically uninjured.

Snakes hibernate by burrowing into the ground below the frost line.

Pioneers found Lake Ontario's north shore infested with snakes. In 1846, Smith declared:

"Snakes are numerous; but venomous kinds are not so plentiful as in the country more to the south (in the United States); of the latter are the rattlesnake, adder; and the copper-head is also said to exist. The water-moccasin is also said to be venomous. Those which are harmless consist of the large black snake, the small brown snake, and the garter snakes. Great numbers of the snakes are destroyed by the large hawks."¹⁵

This statement is historically interesting, and other authorities confirm the reference to the Puff-adder, so common along the lake-shore, although the Copperhead and Water Moccasin references may be discounted as errors in identification.

Among hawks of which, according to Logier, Smith's dictum still holds good, are the red-tailed, red-shouldered, marsh, and sparrow, while in Peel, as pointed out in *From Hummingbird to Eagle*,⁶⁰ the broad-winged has been actually observed with its wriggling prey.

In the middle of the nineteenth century there were many more snakes than today. Even Banded and Massasauga Rattlesnakes, both formerly quite common in Peel, have disappeared, and there are now no poisonous reptiles in the county. Of Ontario's twenty-five species, only six harmless snakes and two turtles have recently been observed in Peel.

The tradition of venomous snakes in the county survives notwithstanding. On 16th April, 1936, when Hydro-Electric workers, moving a pole from the Centre road, disturbed a nest of thirty or forty snakes, averaging 2 to 3½ feet long, workmen and reptiles alike seemed frightened and scuttled off in all directions. Casual on-lookers, on the defensive at once, killed a few; "Mrs. N. F. Ward's⁶¹ maid, who happened to be in the garden, clubbed 6 or more to their finish".⁶² The author, although unable to secure a specimen for identification, might hazard a guess that these were harmless Garter Snakes.

In the course of other investigations it has not always

been possible to turn aside and take time to observe the pretty but elusive snake, and thus several promising opportunities have been missed. The snake seen gliding away among the thorns when the author was examining inscriptions on Mt. Wolfe and Mt. Pleasant tombstones, and another which alarmed members of the Perkins Bull Historical Staff picnicking in The Dingle,⁹¹ may have been representatives of species yet unrecorded in the county. When rambling in the wilder parts of Ontario's rural retreats, it is important for one to carry a notebook if naturalists are to have adequate data for detailed county studies.

The little RING-NECK SNAKE, *Diadophis punctatus edwardsii*, sixteen inches long, has smooth, glossy scales without keels. Its back is bluish grey or slate-coloured, while its belly is yellow or orange, with a matching neck-ring.

Although insect remains have been found in the Ring-neck Snake's stomach, it dines by preference on lizards, smaller snakes, and amphibians, relishing especially Red-backed Salamanders.

Its eggs, usually two or three, are laid during July in rotten logs, or on the ground under stones. Incubation takes from fifty to fifty-five days.

It is said that at one time in parts of England, folk bound the Ring-neck Snake's rejected slough tightly around the brow to eliminate headaches.

This denizen of sparse woods and farm lands is not abundant anywhere in Ontario. It is seldom noticed, as it spends the day-time furtively beneath stones, under loose bark, in rotten logs, or in decaying tree trunks.

<i>Observed</i>	<i>At</i>	<i>By</i>	<i>Remarks</i>
1916	Port Credit	W.J.L.	Several; also reports some killed on farm

The MILK SNAKE, *Lampropeltis triangulum triangulum*, was so called because of the belief that it stole milk out of dairies or sucked it from cows, as might be accessible. Its sharp, recurved teeth, however, would make feeding at first hand impossible. Still some yeomen assure the author there is no reason to discard these time-honoured beliefs.

In a personal interview, William Robert Chadwick⁶³ declared his mother often saw snakes put their heads up through the flagstones of the spring-house floor to get a drink from pans of milk. He claimed to have seen them sucking cows lying in the pasture unconcernedly chewing their cuds. In fact, forty years ago when he went to "fetch the cows" he saw his father kill a "lightish coloured snake" while it was actually enjoying a meal of fresh milk.

Albert Cottrell of Cheltenham, in a letter published in the *Toronto Daily Star*, is quite as categorical:

"You just don't know what you're writing about when you say snakes won't milk cows. Why I've seen them at it, man and boy, for pretty near 50 years. Not every year, I haven't, but off and on over that period of time.

"Why, if you come up to my place (Cheltenham district) and ask any of the farmer folk every one will tell you they've seen milk snakes at work. Why, if they don't drink milk, how does a milk snake get called a milk snake? Of course, I haven't got any pictures. A fellow doesn't go around his barn yard looking for snakes with a picture thing, but all you have to do is ask any of the boys."⁶⁴

As a matter of fact, however, this really desirable reptile haunts farm buildings in search not of milk but of mice and rats.

Nevertheless, it is related⁹² that a 36-inch specimen stepped out of character long enough to terrorize Mrs. Leslie Anderson, Stavebank road near the Dundas highway. It dropped from her kitchen ceiling and landed on the table beside her. Horrified, she watched it coil and attempt to strike at her. This sign of belligerence caused Mrs. Anderson to make a hasty retreat from the house, which remained in a state of siege until her husband returned from work and despatched the intruder with a shot-gun. According to zoologists, the milk snake is entirely harmless, and it was evidently Mrs. Anderson's instinctive fear of reptiles which made her look on this one as an enemy.

A Milk Snake is easily distinguished because it has the

unique combination of a blotched coat and smooth, unkeeled scales. Its pale grey-brown back is decorated with a row of large, black-bordered brown blotches down the spine, flanked by two alternating rows of smaller ones. When fully grown it is three feet or more in length.

In July, this shy reptile hides its eggs under rotten logs or in any unsanitary trash, and Logier tells of a clutch being found in a manure-pile.

<i>Observed</i>	<i>At</i>	<i>By</i>	<i>Remarks</i>
Aug., 1886	Port Credit		R.O.M.
1916	" "	W.J.L.	
18 Apr., 1927	Lorne Park	D.A.M.	In old wood pile
19 July, 1931	Belfountain	E.G.C.	R.O.M.
8 July, 1932	Erindale	J.L.B.	Dead; 34½ ins.
14 Sept., 1932	Lorne Park	R.D.B.	Young; 9 ins.
12 May, 1935	Erindale	L.H.S.	R.O.M.






SHOWING

DIVISIONS OF DEVELOPMENT

OF GEOLOGICAL PLANT AND ANIMAL

TIME

LIFE

ERA	PERIOD	ROCKS	DOMINANT LIFE	AGE of MAMMALS	AGE of SEED	AGE of REPTILES	AGE of AMPHIBIANS	AGE of FISHES and CORALS	INVERTEBRATES	AGE of INVERTEBRATES	AGE of SEA-WEEDS
CENOZOIC 50,000,000 Years	QUATERNARY										
	TERTIARY										
MESOZOIC 150,000,000 Years	CRETACEOUS										
	JURASSIC										
	TRIASSIC										
PALAEOZOIC 350,000,000 Years	PERMIAN										
	CARBONIFEROUS										
	DEVONIAN										
	SILURIAN										
	ORDOVICIAN										
PROTEROZOIC 900,000,000 Years	CAMBRIAN										
	PRECAMBRIAN										
ARCHAEOZOIC 500,000,000 Years											

The WATER SNAKE, *Natrix sipedon sipedon*, has a shiny head, and dull back scales with a keel down the middle of each. Adults, four feet in length, are darkish brown and irregularly marked, with darker lateral and dorsal blotches which, on the forward part of the body, are fused and appear as transverse bands. On the rear part, lateral spots and dorsal blotches alternate. Old snakes are often so dark as to merge most of the blotches in a sombre suffusion, while very young specimens are pale grey with distinct blotches in marked contrast.

Aquatic in habits, a good swimmer and diver, the species lives mostly on small fish, but also enjoys amphibians, crayfish, insects, and even small mammals. The young usually number from twenty to forty and are born in August or September.

The inoffensive Water Snake, still occasionally found about streams and large ponds, was formerly quite common in southern Ontario. Bonnycastle and other travellers found it numerous "in the lone Canadian rivers",⁶⁵ while Smith¹⁵ and many others unfortunately confused it with the venomous Water Moccasin, a species which does not occur above southern Illinois and Indiana. Evidently it has been almost exterminated in more settled districts. When cornered or captured, the Water Snake will fight in self-defence, but its bite is quite harmless.

<i>Observed</i>	<i>At</i>	<i>By</i>	<i>Remarks</i>
June, 1894	Etobicoke	G.F.D.	1
June, 1927	Port Credit	R.D.B.	R.O.M.; also 1 taken May, 1928
8 Sept., 1935	Streetsville	F.L.R.	R.O.M.

DEKAY'S BROWN SNAKE, *Storeria dekayi*, is only about fifteen inches long, with seventeen rows of dull-textured, keeled back scales. Brown on top, it has a paler stripe down the middle of the back, and beneath is of a light oatmeal or pinkish hue. From twelve to twenty young snakes are born in July or August.

It dwells unobtrusively in open, dry woods and park lands, hiding under stones or other cover until late afternoon. Worms, slugs, and insect larvae form its principal food. Because of its secretive habits and easily obtained diet, this snake can survive even in city parks and vacant lots.

<i>Observed</i>	<i>At</i>	<i>By</i>	<i>Remarks</i>
1916	Port Credit	W.J.L.	Common
27 June, 1926	Erindale	J.L.B.	
18 Apr., 1927	Lorne Park	D.A.M.	
19 Aug., 1927	Etobicoke creek	E.B.S.L.	R.O.M.
		W.J.L.	
24 Apr., 1932	Erindale	J.L.B.	Also 2 seen on 1 May

The RED-BELLIED SNAKE, *Storeria occipito-maculata*, only about ten inches long, takes its name from its red or pink belly. It resembles Dekay's Brown Snake but has fifteen instead of seventeen rows of lustreless, keeled scales. A paler stripe traverses lengthwise the chestnut brown, grey, or nearly black back. Light spots adorn the nape of the neck and each side of it. The young, numbering up to fifteen, are born in August or September. Its food and its haunts are similar to those of Dekay's.

Because of its copper colour, this harmless reptile is sometimes mistaken for the venomous Copperhead, a quite dissimilar species. Hence, doubtless, Smith's erroneous reference already quoted. Thus pioneers killed off the Red-bellied Snake whenever they found it, and it is no longer common.

Observed
1916

At
Credit river

By
W.J.L.

The GARTER SNAKE, *Thamnophis sirtalis sirtalis*, may stretch three feet or longer, but most of those seen are not nearly so large. The keeled scales of the upper surface have a satiny texture, and are blackish, brownish, or olive in tone, with dorsal and lateral stripes of light yellowish hue. Alternating dark spots may pattern the sides. The under surface is generally dull yellow, often with a greenish or greyish cast. The young, from ten to thirty, arrive about August.

This snake feeds mostly on frogs, toads, and earthworms, with an occasional fish or bird. Samuel Thompson tells of a five-foot Garter Snake which "wriggled its way to the upper branches of a young cherry tree ten feet high to banquet on the tempting fruit".³⁶

The hardy Garter Snake is first to appear in spring and last to go in autumn. It is found in light woods and clearings, about ponds and streams, and along the shores of lakes. While not essentially aquatic, it takes readily to water and is a good swimmer. It is harmless, and if tamed is said to show real affection for its human friends. Throughout southern Ontario, it is perhaps the commonest of all snakes, though in the more settled districts it is gradually sharing the fate of its kind.

Observed	At	By	Remarks
30 June, 1894	Etobicoke	G.F.D.	
27 Apr., 1924	Port Credit	J.L.B.	
Apr., 1927	Lorne Park	D.A.M.	Common
24 June, 1928	Erindale	J.L.B.	
1928-30	Port Credit	R.D.B.	3; also 1 at Erindale
Mar., 1929	Forks of the Credit	J.L.B.	3 taken; also 6 on 29 Mar.
15 May, 1932	" " " "	C.E.H. T.M.S.	2; also 6 on 16 Oct., 1 on 23 Oct.; 2 on 6 Nov. by C.E.H. only
	Snelgrove	J.M.S.	

The MASSASAUGA, *Sistrurus catenatus catenatus*, and the BANDED RATTLESNAKE, *Crotalus horridus*, were slaughtered in thousands in the 1790's, when Dundas street was being constructed through the tangled wilderness. When surveying for this highway, Augustus Jones, whose wife was a Mississauga "princess",⁶⁶ told Mrs. Simcoe⁶⁷ that 700 Rattlers had been killed by his assistants and construction gangs in one season. In 1816 a traveller remarks that along the south shore of Lake Ontario, Rattlesnakes were already becoming very rare, as the settlers' hogs had done the good service of destroying them.⁶⁸ No doubt this was true of the country on the northern shore also. However, J. G. Sharp⁶⁹ reports a few in Caledon township in the 1830's or 1840's when the Rockside settlement was growing up, and James H. Bolton⁷⁰ refers to them as even later inhabitants of Albion township.

The Ridges, Peel's share of the Niagara cuesta, offer more shelter to serpents than the fertile, more open lowlands. In declaring that Rattlers prefer rocky districts and have not occurred nearer Toronto than the heights between Niagara and Hamilton, Williams forgets that Caledon and Albion are of similar contour and climate.⁷¹

Although the Rattler is one of the most feared of North America's poisonous snakes, it apparently was not particularly awesome to pioneers. Mrs. Simcoe heard that many were killed every day for six weeks by the roadworkers who were stirring up the debris of ages, and that no one had been bitten. One man stung the previous August, however, had recovered. The lieutenant-governor's wife described two snakes sent in a barrel for her inspection as "dark and ugly", shaking their rattles with a "whizzing sound" when she poked them. Of their innocuous behaviour she writes:

"They live in caves, and in very dry weather go down to the lake to drink; they are sluggish, and, as they move in numbers at a time, probably would be easier destroyed than many other reptiles."⁶⁷

Rattlers are never aggressors, but always try to escape from man. When retreat is impossible, their rattles give warning that they are going to act in self-defence.

It is said that this snake's age may be computed by counting the number of rattles. Recently, however, a

scientific writer in *The Evening Telegram*, Toronto, pointed out the unreliability of this method, since more than one rattle may develop in a year or, on the other hand, one or more may be lost.

As pioneers called both the Banded and the Massasauga "Rattlers", it is impossible to determine their relative numbers. Today, although Massasaugas still haunt the vicinity of Lakes Erie and Huron and some of the more unsettled districts around Georgian Bay, the Banded is perhaps extinct in Ontario.

It would be logical to think that the Massasauga had been the commoner in Peel from the beginning, since it seems to derive its name from the same Indian sources as the Chippewa tribe which for years lived around the mouth of the Credit. Mississauga means "big mouth". Some hold that the Indian tribe took its name from a river with a wide-spread, shallow outlet, but others that it was adopted in honour of the tribal totem, a Rattlesnake.⁶⁰ The latter view was evidently held by Major W. Ross King who, in the 1860's, referred to Fort Mississauga with the bracketed explanation, "Anglicé, Rattlesnake".⁷²

The belief that most of Peel's early Rattlers were Massasaugas is strengthened by a description in *The Emigrant's Guide to Upper Canada*:

"Snakes of various kinds are not infrequent, but they produce little or no inconvenience. The Rattlesnake, which is pretty numerous in some marshy places to the south-west, is not near so large or so venomous as that of the United States, and seldom or never causes any anxiety. It rarely appears; it warns of its proximity by its rattle, which makes a rustling sound; and its venom, in general, is easily cured. Sweet oil, for this purpose, is very powerful."⁷³

Indians also claimed to have antidotes for Rattlers' poison.

This unconcern as to snake-bites suggests the prevalence of the Massasauga rather than the Banded Rattlesnake. Although the former is probably the more toxic, being closely related to the highly venomous Moccasins and Copperheads, its short fangs would usually prevent it from biting effectively through clothing. Furthermore, owing to its mild temper, it could hardly be considered a menace. Hence human injuries from the Massasauga are so rare as

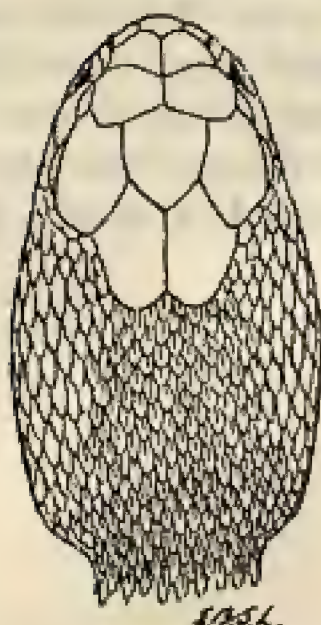


IN PIONEER DAYS

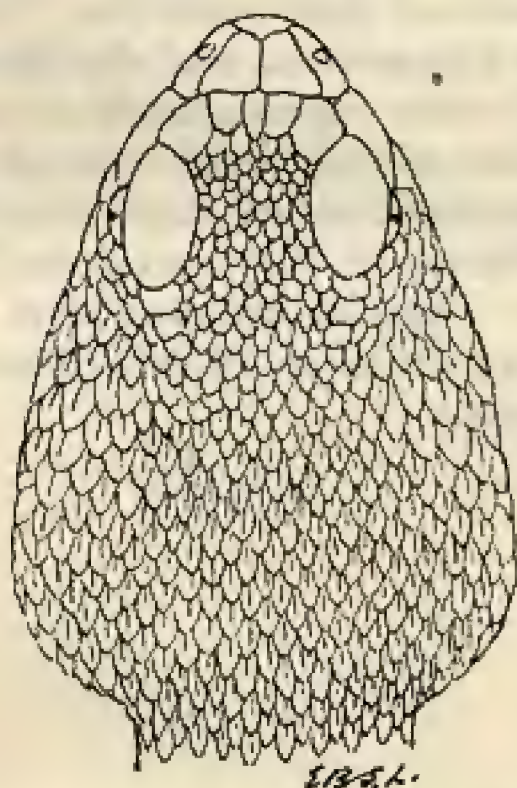
THE picture on the reverse of this page reproduces one of 450 or 500 original paintings and drawings in the Perkins Bull Collection, Brampton. Many pictures show the activities of Peel's early pioneers in days when amphibians and reptiles were numerous. Among such are: Alfred E. Mickle's Pioneer Harvesting, George A. Reid's Pioneer Ploughing, Owen Staples' Old Log House, Homer Watson's A Pioneer Cabin, also Pioneers at Lunch.

to be almost negligible.

If it were true, as legend has it, that Martha Blair was "the only person known to have died in Peel on account of snake bites",⁷⁴ she was doubtless the victim of a Timber or Banded Rattlesnake. There is, however, no attested record of a death in Peel from snake-bite.



HEAD OF MASSASAUGA
Prairie Rattlesnake



HEAD OF BANDED RATTLESNAKE

Many of the stories of snake-bites are on a par with Mark Twain's famous anecdote:

"Now you think it's bad luck; but what did you say when I fetched in the snake-skin that I found on the top of the ridge day before yesterday? You said it was the worst bad luck in the world to touch a snake-skin with my hands. . . .

"It did come, too. It was a Tuesday that we had that talk. Well, after dinner Friday, we was laying around in the grass at the upper end of the ridge, and got out of tobacco. I went to the cavern to get some, and found a rattlesnake in there. I killed him, and curled him up on the foot of Jim's blanket, ever so natural, thinking there'd be some fun when Jim found him there. Well, by night I forgot all about the snake, and when Jim flung himself down on the blanket while I struck a light, the snake's mate was there, and bit him."⁷⁵

The Massasauga, about 3 or 3½ feet long, is a couple of feet shorter than the Banded. Large, symmetrical plates cover the top of the former's head, while the head scales of the latter are asymmetrical.

The Banded, the most beautiful of all Rattlers, delights in dry and rocky situations such as abound in Caledon and Albion, while the Massasauga prefers Ching-uacousy and Toronto township swamps so deplored by pioneers.

Both species, in common with vipers generally, make mammals their staple diet. The Massasauga, like its relatives the Copperhead and the Moccasin, also takes amphibians and other reptiles, while it is claimed that Banded Rattlesnakes eschew frogs but relish dead birds. Rattlers were once more or less staple diet for pioneers' pigs; nowadays, being scarce, they are coveted by epicures as hors-d'oeuvres.

These snakes give birth to living young: the Massasauga six or seven in a litter; the Banded, as many as a dozen.

The GREEN SNAKE, *Liopeltis vernalis*, found as far north as Lake Nipissing, is slender and does not exceed eighteen inches in length. Glossy, unkeeled, grass-green scales adorn its back; underneath it is pale yellow, like grass that has been covered by a board. Its protective colouring may explain why, although the county is well within its range, it has been reported only once from Peel.

Being insectivorous, the dainty Green Snake loves to lurk in underbrush or beneath boards, stones, or other shelter at the edges of pasture or grain-fields. Of this snake, an old-time naturalist remarked: "It is very readily tamed, and many persons are fond of carrying this beautiful creature about them, tying it round their throats as a necklace, or as a bracelet on the wrist."¹

<i>Observed</i>	<i>At</i>	<i>By</i>	<i>Remarks</i>
Mar., 1932	Erindale	H.R.I.	1 seen

The RIBBON SNAKE, *Thamnophis sauritus sauritus*, pale green below and olive to rich blackish brown above, is striped along the spine and on each side with bright yellow lines. It is a foot or more longer than the Green Snake, but is equally shy and unobtrusive. Hence, although doubtless another winsome denizen of the county, the sleek, velvety Ribbon Snake has not yet been formally recorded.

Fantastic SEA SERPENTS, in Peel, as elsewhere, while delighting journalists, have tried the patience of zoologists. In 1813 a geographer of Upper Canada says:

"A number of years ago there were several people of respectability, who reported that they saw in Lake Ontario several large snakes, about 20 yards in length. In June 1811, a snake was seen in this lake near the mouth of the River Credit, 16 miles above York. I was acquainted with some who saw it, & believe them to be people of truth. It came within 7 yards of the boat that they were in, & played about it, & was judged to be 30 feet in length & 3 in circumference."⁷⁶

Colonel A. E. Taylor, who owns Heart lake, tells of strange sub-aquatic disturbances, which rustics ascribed to a survival or revival of some prehistoric monster. It is claimed that water has been seen to spurt fifteen feet or more in the air, somewhat as a whale spouts, but not in a single fountain. The moving column seems to plough through the water for fifteen or twenty feet horizontally, at great speed, so natives believe it is produced by a moving animal.

Many people, including Taylor and his family, claim to have seen the "serpent", but descriptions are vague and incoherent.⁷⁷ Stories such as this belong to fiction rather than to a scientific treatise,⁷⁸ but the historian cannot resist making passing references, particularly when the scene is a small Peel county lake within a half dozen miles of his boyhood home. Heart lake was long reputed to be bottomless, but around the turn of the century it was thought to be only about thirty feet deep, and in 1918 its greatest discoverable depth was fifty feet. Thus all too often the baffling wonders of school-days vanish. The Sea Serpent too must be classed, albeit regretfully, with the entrancing but mythical creature described by Henry Johnstone:

"There was a snake that dwelt in Skye,
Over the misty sea, oh;
He lived upon nothing but gooseberry-pie,
For breakfast, dinner, and tea, oh!"⁷⁹

TURTLES

"We called him Tortoise because he taught us."

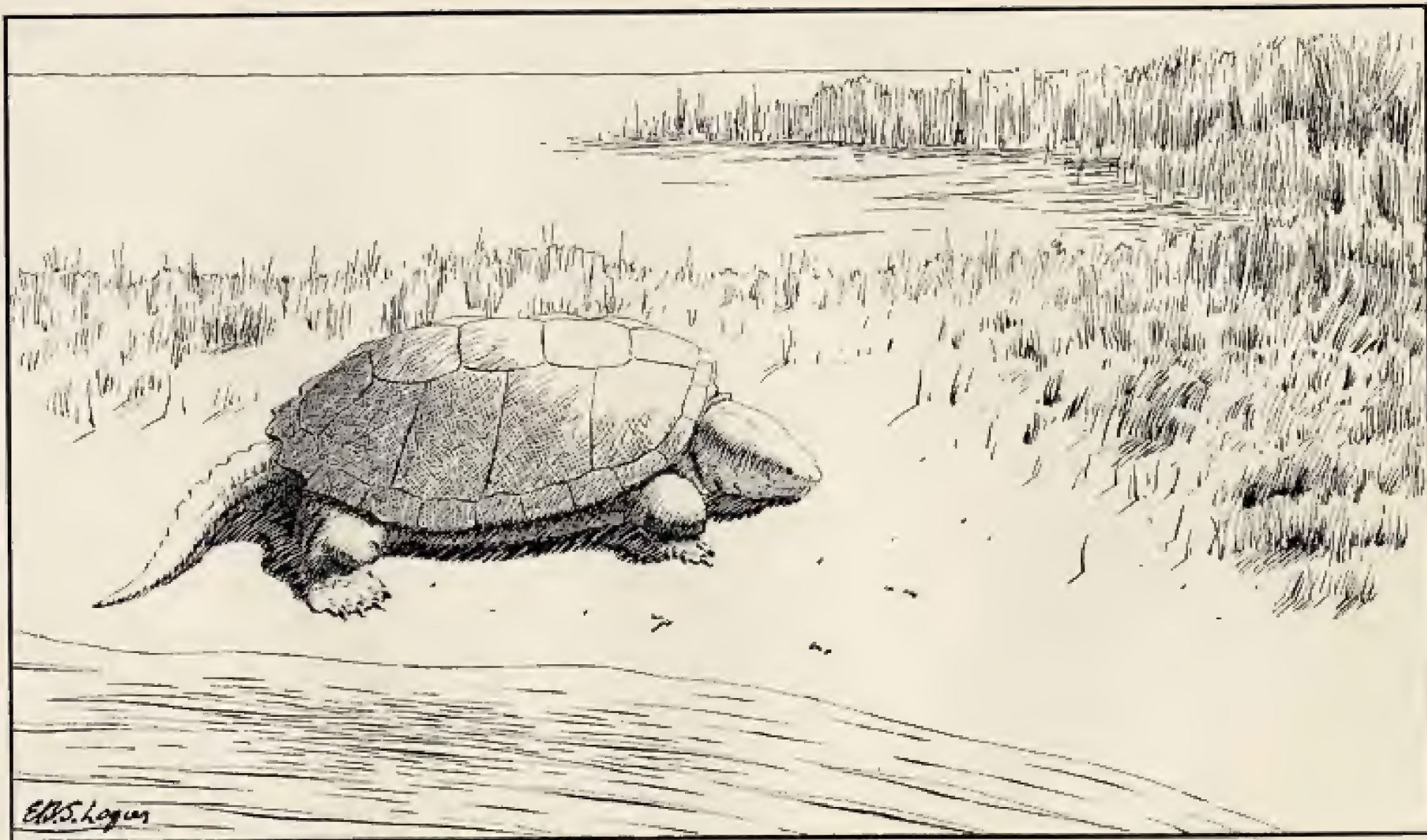
—LEWIS CARROLL

THIS order has passed into fable and proverb as a phlegmatic and peaceful symbol of imperturbable wisdom, though it is often associated with stupid fiascos. The Tortoise that raced a hare⁸⁰ and beat him assures the young that "Plodding wins the race," while the Tortoise carried by an eagle and dropped on the rocks to furnish a meal for his conductor and the wily crow, warns, "Never soar aloft on an enemy's pinions." Roumanians claim the Tortoise is a poor old woman who squatted on her own bread-board and covered herself with the trough to avoid giving one of her two loaves of bread to God and St. Peter when they were travelling incognito.⁴⁸

Boulenger suggests that Turtles may be much more intelligent than men suppose, if intelligence consists, as psychologists say, in rapid adjustment to environment. The Amsterdam Aquarium being overcrowded, some Mullet were put in with the Turtles, which would ordinarily have preyed on them. However, when the Mullet were introduced, the water was violently agitated and the Turtles undoubtedly concluded that the new arrivals had caused "all this uproar and splashing". Though they devoured Mullet and all other fish subsequently introduced, they let this lot alone. In fact, when the visiting Mullet were moved to a new tank, the Turtles moped and refused to feed until their little friends returned. "From that time onwards, there was no happier tank of turtles ever shown to the public."⁸

"The Turtles," declares Williston, "very early adapted themselves so well to their peculiar mode of life . . . that no other creatures have been able to overcome them . . . The remains of no other air-breathing vertebrates are so omnipresent" in prehistoric as well as in historic rocks.⁸¹ However that may be, they are now widely distributed over both hemispheres.

The age to which a turtle may attain has not yet been



SNAPPING TURTLE

determined, but there are authentic records of its living to more than 150 years. Many marine species live on anything and everything edible, but some land varieties are strictly vegetarian. Of sea turtles Boulenger says:

"These lumpish monsters positively 'flit' through the water with a movement of their huge flippers far more suggestive of flight than of swimming. The swallow may be swifter, but is certainly not more graceful than a turtle in his native element."⁸

These are, perhaps, the only reptiles not regarded by mankind with either fear or distaste. Though some are occasionally vicious, and the Snapping Turtle can inflict painful bites, most Turtles, large and small, seem as unaggressive as they are lethargic.

Painted Turtles form the *pièce de résistance* of the modern aquarium. Their undersides show an almost unlimited gamut of colour and design, resembling in some cases Japanese water-colours and in others Egyptian hieroglyphics.

Marine Turtle shells (Hawksbill, *Chelonia imbricata*) have been used from earliest times to make ornaments, combs, boxes, and other trinkets. Tortoise-shell was very popular in Renaissance days, and mariners doubtless missed no opportunity to add a supply to their cargo. In 1516 Peter Martyr, an Italian of the court of Ferdinand and Isabella of Spain, describing Spanish explorations, mentions fishing for sea turtles in the West Indies.⁸² Other sailors followed the Spanish example.

Green Turtle soup is a *chef's* delight. Browning speaks longingly of "A plate of turtle, green and glutinous",⁸³ and Lewis Carroll makes his Mock Turtle sing sadly of the days when he "was a real turtle":

"Beautiful Soup, so rich and green,
Waiting in a hot tureen!"⁸⁴

Turtle eggs, too, are relished by many.

Sportsmen have recently discovered that slowness, as well as speed, has attractions. Thus keen competition is now aroused by "racing turtles".

The BOLTON TURTLE. James H. Bolton, whose rebel grandfather founded the Albion township village bearing his family name, says:

"In 1875 Thomas Curliss₈₈ captured a monster turtle which had come out of the pond into his garden. It had been taken before as the date '1839' had been cut into its shell. He kept it in a tub, made by cutting a sugar hogshead in two [,] for months and had a new date cut in its shell, but one night some persons upset the tub and the turtle escaped again into the pond."₇₀

The CHELTENHAM TURTLE. There are exaggerated stories about a huge turtle captured in Caledon township in 1923 and inscribed with initials. A later press report states it was "big enough to transport a passenger across the river":

"With the mill-running Credit waters appreciably decreased in depth, lo! and behold! the Cheltenham turtle was again in evidence; the same reptile with the tell-tale initials. More initials were carved on its shelly surface and it was again released. In another decade the centenarian may again visit the village, for apparently it is quite content to pass its remaining years locally in the waters of the Credit at Cheltenham."⁸⁶

The SNAPPING TURTLE, *Chelydra serpentina*, the largest Canadian species, doubtless afforded the monster examples referred to by Bolton and Cheltenham news-mongers. According to Logier, old specimens of this Snapper weighed up to forty pounds, and though such big fellows are seldom if ever seen nowadays, "they were likely common enough in early days". Today 12 to 14 inches is the usual length, but as recently as 1917 a 96-pounder caught near Gibson's lake was sold to Riverdale Zoo, Toronto.⁸⁷

Upper surfaces of the Snapping Turtle's head and limbs are dark brown. The small plastron gives little protection to the dull yellow underparts and leaves the limbs exposed. The rigid, dark brown carapace is serrated behind with a median and two lateral keels. These become obsolete with age, and the carapace is often covered with a dense growth of algae. So it is that older turtles are commonly called Moss-backs—an epithet betimes hurled at more or less unprogressive specimens of mankind.

In 1846, Smith mentions the Common and the Snapping Turtle as "plentiful in the rivers and ponds of this country".¹⁵

In the 1840's, a visitor to the Credit river refers thus to the Snapping Turtle:

"There is a large species of land-turtle found in the lagoons and muddy ponds here, about the size of a very large meat-dish, covered with a dirty-coloured, brown, impenetrable armour, with a long projecting neck, and hawk's bill. This animal is edible, and very good soup may be made of it, if the precaution be taken of clearing away the gall-bladder and ducts as soon as it is killed. It lays a great number of white round eggs, about the size of a grape-shot; and these are excellent."⁶⁵

Of another spot near by, the same author remarks:

"Besides the terrapin, or land-turtle, which nobody eats, that I am aware of, in Canada, although it is a regular hotel dish in New York, there is a large kind of turtle in the ponds and marshes of the island, called the hawkbill, or mud-turtle, a ferocious biting gentleman, whom you cannot keep on his back when you turn him, owing to the length of his head and neck, and who yields, when well cooked with the eggs, very excellent soup."

This sounds like friend the Snapper. "Turn turtle" apparently means little to him.

In June, the Snapping Turtle lays twenty to fifty

eggs in a funnel-shaped nest dug in moderately dry sand or clay, yet not far from water. Young may emerge in August or September, or perhaps not until the following spring. The parents do not, however, as Pliny declared nineteen centuries ago, "hatch their eggs by means of the eyes, by merely looking at them"!

This voracious, ill-tempered animal is carnivorous, and feeds indiscriminately on dead flesh or any small animals that come its way. Yet, like the Bullfrog, it is much sought after as a table delicacy. It frequents lakes, marshes, ponds, and sluggish streams.

<i>Observed</i>	<i>At</i>	<i>By</i>	<i>Remarks</i>
25 Aug., 1917	Gibson's lake	W.D. J.M.	See text
24 May, 1928	Lorne Park	D.A.M.	Young (carapace about 4 ins.) in alder swamp
25 Aug., 1932	Huttonsville	G.E.P.	R.O.M.
23 Oct., 1932	Caledon East	E.W.S.	Nest; 54 hatched eggs, some young still within shells

The PAINTED TURTLE, *Chysemys marginata marginata*, one of the smallest fresh-water subspecies, is southern Ontario's common pond and stream turtle. It may also be found in sheltered places along the shores of the Great Lakes. Much of its time is spent in the water. On warm days, numbers may be seen basking along the shore on logs or muskrat houses. It is wary, however, and difficult to approach.

This handsome fellow has a six-inch carapace of brown or dark olive ostentatiously margined with red. The yellowish or pinkish plastron has a dark central patch. Head and limbs are dark; the head striped with yellow, the neck and limbs with red. Doubtless Sir Richard Bonnycastle refers to it when, in the forties, he remarks:

"A small and beautiful tortoise, marked with vermillion and green, is also very common in the marshy ground; but these, although resembling the New York terrapin, are never used in Canada for food."⁶⁵

Like the Snapper, the Painted Turtle feeds ravenously on any accessible animal matter. In June, the female wanders up on the beaches or into plowed fields to lay her eggs. A flask-shaped hole, four or five feet deep, in soft, moderately dry earth or sand, provides a nest. In this she deposits from four to eight eggs, then fills in soil and smooths it down. Young turtles usually hatch in about two months, dig themselves out, and make directly for water.

<i>Observed</i>	<i>At</i>	<i>By</i>	<i>Remarks</i>
1912	Credit river	E.B.S.L.	
30 Sept., 1931	Port Credit	J.M.S.	
24 Aug., 1935	Streetsville	F.L.R.	R.O.M.



WHERE THE "PERKINS BULL" TURTLE WAS CAUGHT



CHRISTENING THE "PERKINS BULL" TURTLE

Grey Nans, Dr. Jean Valin, the Author, and his grand-daughter Sarah Symons.



GREY NUNS, DR. JEAN VALIN, SARAH SYMONS,
AND THE "PERKINS BULL" TURTLE



DR. JEAN COUPAL MOUNTED ON THE
"PERKINS BULL" TURTLE

The "PERKINS BULL" TURTLE. On 19th June, 1938, Grey Nuns of the Sacred Heart Convent, Ottawa, tendered the author a reception on the occasion of his receiving an LL.D. from Ottawa University. Later they invited him to their farm on the outskirts of Ottawa, to see a turtle which a Sister had caught in the Rideau while fishing for perch.

Realizing that she could not land the creature with her light rod and line, the nun waded out, seized it by the tail, and dragged it ashore. After making a hole in its shell, she ran a wire through it and tied Mr. Turtle to a tree. Sad to relate, the fishing line had broken, leaving the hook in its throat.

Dr. John₈₉ (Jean Louis) Coupal, aided by some of the Sisters, anaesthetized the turtle, and removed the hook. Next day it was still bleeding, so Dr. Jean (Romuald) Valin₈₈ anaesthetized it again—using a pound of ether—and mended a tear in its tongue.

On hearing that the forthcoming book of the Perkins Bull Historical Series dealt with amphibians and reptiles, the Grey Nuns christened the turtle Perkins Bull and gave it to its namesake on his departure. It was reckoned to be over a hundred years old and to weigh between thirty and forty pounds.

Alas! this story has an unhappy ending. True to tradition, both "operations were successful, but the patient died." The author had arranged for its acceptance by the Zoological authorities at the Riverdale Zoo, Toronto. Charles E. Chambers, Parks Commissioner, had it taken to Dr. James A. Campbell, V.S., at the Zoo Hospital, who pronounced it a Snapping Turtle and doubtless a male. He gave it as his opinion that it was the hot, 285-mile ride on the trunk rack of the author's car from Ottawa to Toronto, that was fatal to the noble reptile.

After its demise, its body was sent to the Royal Ontario Museum, and in due course the shell of this turtle will find its permanent home in the Perkins Bull Museum, which now occupies a floor in the Carnegie Library at Brampton.



From Backwoods of Canada
TWIN SPRUCE

APPENDIX

1. *Genesis*, I, 25
2. Milton: *Paradise Lost*, Bk. III, l. 800
3. *Leviticus*, XI, 12, 42
4. Bostock: *The Natural History of Pliny*
5. *Exodus*, VIII, 14
6. Act IV, Sc. 1
7. Topsell: *History of Serpents*, cit. Seager: *Natural History in Shakespeare's Time*
8. Boulenger: *The Aquarium Book*
9. Gilmore & Cochran: *The Cold Blooded Vertebrates*. Pt. II, Amphibians.
10. Excepting such grunting fish as the croaker & squeteague.
11. Wood: *The Illustrated Natural History*
12. Article on this subject in Spence's *Encyclopaedia of Occultism*.
13. Taylor: *The Aquarium, Its Inhabitants, Structure, and Management*
14. Bartholomeus: *de Proprietatibus Rerum*, 1533, cit. Seager, *ibid.*
15. Smith: *Canadian Gazetteer*, 1846
16. Inf. from Guy Bell, Reuben Lighthouse & Wm. Rutledge. Also mentioned by Smith in *Pioneers of Old Ontario*.
17. Peattie: *An Almanac for Moderns*
18. Letter of 30 June, 1938, from J. R. Herbin, Prov. News Ed., *The Telegraph-Journal & The Evening Times-Globe*
19. Letter of 27 June, 1938, from E.M.A. Vaughan, Librarian, Saint John Free Public Library, who also consulted Dr. MacIntosh of New Brunswick Museum.
20. Jameson: *Winter Studies and Summer Rambles in Canada*. Vol. II, p. 3. "They are quite harmless, I believe . . ."
21. Aristophanes: *Frogs* (405 B.C.)
22. Cit. Plutarch: *Which are the most crafty, Water or Land Animals?*
23. L'Estrange, Roger: *The Boys and the Frog*
24. *Grimm's Fairy Tales*
25. *Mother Goose*
26. Dickinson, Emily: *Poems* Pt. I, No. 27
27. *Sketches New and Old*
28. *The Star Weekly*, Toronto
29. Lot 10, con. 2 E., Ching. Cf. observations in *From Hummingbird to Eagle*.
30. Dr. Jno. Crombie (Cit. "Ratepayer's Ramblings", *Conservator*, 17 Dec., 1897); Rev. R. J. Macgeorge, Ed. *Streetsville Review* in 40's.
31. In 1834, after farming for some yrs., Jno. Elliott, known as "Daddy" because of his genial hospitality, laid out the first village lots on the N.W. corner of his farm, now the S.E. corner of Main & Queen sts., Brampton. "Daddy" was Postmaster, Poundkeeper, Town Warden (1842), Director of Co. Soc. of Agriculture & later Director of Board of Agriculture of U.C. Portrait is in Perkins Bull Collection, Brampton.
32. Kenneth Chisholm (1829-1906) m. Jno. Elliott's dtr. Margaret. He was Warden, Liberal M.P.P. & Registrar. In partnership with Jno. Elliott & later with his brother-in-law, Matthew Mitchell Elliott, Chisholm ran a general store in Brampton. He also operated grist & flour mills at Eldorado. Chisholm & Elliott owned quarries at Credit Forks, which supplied cut stone for Ont. Parliament Bldgs. & for most of the Province's other public bldgs., churches, warehouses, & brownstone mansions. In 1902, \$1,000 was subscribed to add to park presented by Sir Wm. Gage, E. half of Chisholm estate lawn, being pt. of Etobicoke flats. It was, like the properties at Eldorado and Credit Forks, a well-known frog haunt.
33. Gage Park, opposite court-house, was given to Brampton in 1902 by Sir Wm. Gage, publisher & philanthropist. Cf. *From Medicine Man to Medical Man*.
34. Albertus Magnus: *Wonders of the World*, 1553, cit. Seager, *ibid.*
35. *Poems*, 1933
36. *Reminiscences of a Canadian Pioneer*
37. Lupton: *Thousand Notable Things*, c. 1600, cit. Seager, *ibid.*

38. *As You Like It*, Act II, Sc. 1
39. *Winter Studies and Summer Rambles*. "We have no music in our groves but that of the frogs . . . Then we have every possible variety of note, from the piping squeak of the tree-frog, to the deep, guttural croak, almost roar, of the bull-frog."
40. A Traveller: *Notes upon Canada and the United States, From 1832 to 1840*
41. *Farmer's Advocate*, Apr., 1892
42. *Sun*, Orangeville, 19 Nov., 1868, cit. *Orangeville Banner*, 17 Oct., 1935
43. Son of W. A. McCulla; Lt. No. 1 Coy. Peel Bn., 1892; served in N.W.M.P., S. African War & Great War; Ang.
44. Son of Scottish baker, Queen st. E., carried on father's business; Presb.
45. B. 1872, son of Jno. Clarke, keeper of grocery & liquor store; M.D., Baltimore, Md.
46. Capt. No. 1 Coy. 36th Peel Bn., 1890; taught at Broddytown; B.A., Principal Bolton Public School; later sold life insurance.
47. About a million years ago great ice sheets stretched across the continent and covered present Peel & York counties. They carried with them clay, sand & loose boulders. Sometimes glacial ice, buried in clay, melted later & formed lakes. Probably Heart, Scott's, Gibson's & other small lakes of Cldn. & Alb. are of this type.—Prof. W. A. Parks, U. of T., in interview with author re geology of Peel
48. Gaster: *Rumanian Bird and Beast Stories*
49. New edn., 1929. Corrected impression, 1931.
50. Henry says, "We reached the mouth of the Missisaki, where we found about forty Indians . . ." The *Jesuit Relations*, 1670-71, mentions "Mississagues" who dwelt on river Mississauga and were then distinguished from other "Algonkins" on north shore of Lake Huron. In 17th and early 18th centuries they drifted southward, encountering Iroquois in old Huron hunting-grounds. Warfare between the two nations continued till 1746, when Mississaugas were admitted as 7th tribe of Six Nations. Further details will appear in *From Macdonell to McGuigan & From Oxford to Ontario*.
51. Henry: *Travels and Adventures in Canada and the Indian Territories, 1760-1776*
52. Article on Amphibians in Spence's *Encyclopaedia of Occultism*.
53. Cit. article on Elixir of Life, Spence's *Encyclopaedia of Occultism*.
54. Madame d'Abrantes: *Memoirs*, Vol. I, Chap. 39
55. *Pepys's Diary*
56. A *Memoir*, &c. cit. *Ichthyologia et Herpetologia Americana*
57. Shakespeare: *Antony and Cleopatra*, Act II, Sc. 7
58. Interview with Prof. J. R. Dymond, R.O.M., 10 Feb., 1937
59. W.E.C. in *Toronto Daily Star*, 17 Apr., 1937
60. See p. 106
61. Mrs. N. F. Ward, Port Credit Home and School Club worker, wife of a chemical engineer, laughingly declared she could see the point of old-time beliefs in spontaneous generation of snakes, as no reptiles had been seen around the Ward property before or since.
62. *Globe*, Toronto, 17 Apr., 1936
63. Geo. Chadwick bought S.W. $\frac{1}{4}$, lot 5, con. 2 N.D.S., Tor. twp., 1 Apr., 1876; Wm. R. bought $\frac{1}{4}$ of the $\frac{1}{4}$, 29 Nov., 1910.
64. Written in reply to Gordon Sinclair's offer of cash prize for picture of snake milking cow.
65. Bonnycastle: *The Canadas in 1841*, Vol. II
66. Augustus Jones, Welshman, settled on Hudson river before American Revolution. Employed by Gov. Simcoe as land surveyor; m. Tuh-ben-ah-nee-quay, dtr. of Mississauga chief, by whom he had 2 sons, Chief Jno. & Rev. Peter, Meth. missionary.
67. *Simcoe, The Diary of Mrs. John Graves*
68. Hall, Francis: *Travels in Canada and the United States in 1816 and 1817*
69. Jas. Geo. Sharp, of Terra Cotta, is grandson of Jas., early Cldn. settler, & familiar with Rockside district history.
70. Bolton, *Some History and Events*. Reprinted from *Bolton Enterprise*, 1931. Cf. *From Brock to Currie*, p. 164-7, 215, 715.
71. Faull: *Natural History of the Toronto Region*, Chap. VII, Reptiles (Williams)
72. *The Sportsman and Naturalist in Canada* (1866)
73. Sec. XVI, p. 300

74. Martha, acc. to Alb. twp. tradition, one of Chas. Blair's 18 children. Relationship cannot be traced to any better-known Blair families, but may be related to Ebenezer (1778-1860) or David, both of lot 16, con. 3, Alb.
75. *Huckleberry Finn*, Chap. X
76. Smith: *Geographical View of the Province of Upper Canada*, 1813
77. Col. Taylor once observed peculiar ebullition, like a geyser, spurting up from depths of lake in sulphur-coloured lumps. This suggests mineral springs rather than Sea Serpents.
78. However, there are scientific studies of the Sea Serpent, i.e., *Report of... the Linnaean Society of New England Relative to a Large Marine Animal, Supposed to be a Serpent, Seen Near Cape Ann, Massachusetts, in August, 1817*, Boston, 1817. A drawing of the monster is shown. It is noteworthy that copy of report was sent to Thos. Jefferson. (*Ichthyologia et Herpetologia Americana*) A more comprehensive treatise is Lt. R. T. Gould's *The Case for the Sea-Serpent*, London, Philip Allan, 1930.
79. *The Fastidious Serpent*
80. *Folk-Lore and Fable*, Vol. 17
81. *Water Reptiles of the Past and Present*
82. *Ichthyologia et Herpetologia Americana*
83. *The Pied Piper of Hamelin*
84. *Alice in Wonderland*
85. Proprietor of Alb. hotel; cf. *From the Boyne to Brampton & From Strachan to Owen*.
86. *Banner and Times*, Brampton, 18 July, 1933
87. *Bolton Enterprise*, 31 Aug., 1917
88. Jean (Romuald) Valin graduated from McGill U., 1905.
89. Jno. (Jean Louis) Coupal, b. 1898, graduated from U. of Montreal, 1924. Licensed to practise same yr.
90. Era of geological time from the beginning of the Cambrian to the close of the Permian period—about 350 million yrs. ago.
91. Valley N. of Sleswick (E. $\frac{1}{2}$ lot 32, con. 1, Alb. twp.) settled by Farrell Rossney & descendants.
92. *Port Credit Weekly*, Port Credit, 21 July, 1938.

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ABBREVIATIONS

<i>acc.</i>	—	<i>according (to)</i>	<i>M.A.</i>	—	<i>Master of Arts</i>
<i>Alb.</i>	—	<i>Albion</i>	<i>Mar.</i>	—	<i>March</i>
<i>Ang.</i>	—	<i>Anglican</i>	<i>M.D.</i>	—	<i>Doctor of Medicine</i>
<i>Apr.</i>	—	<i>April</i>	<i>Md.</i>	—	<i>Maryland</i>
<i>Aug.</i>	—	<i>August</i>	<i>Metb.</i>	—	<i>Methodist</i>
<i>ave.</i>	—	<i>avenue</i>	<i>M.P.P.</i>	—	<i>Member of Provincial Parliament</i>
<i>b.</i>	—	<i>born</i>	<i>Mt.</i>	—	<i>Mount</i>
<i>B.A.</i>	—	<i>Bachelor of Arts</i>	<i>N.</i>	—	<i>North</i>
<i>B.C.</i>	—	<i>British Columbia; Before Christ</i>	<i>N.B.</i>	—	<i>New Brunswick</i>
<i>bk.</i>	—	<i>book</i>	<i>N.D.S.</i>	—	<i>North of Dundas street</i>
<i>bldg(s).</i>	—	<i>building(s)</i>	<i>No.</i>	—	<i>Number</i>
<i>Bn.</i>	—	<i>Battalion</i>	<i>Nov.</i>	—	<i>November</i>
<i>c.</i>	—	<i>circa (about)</i>	<i>N.W.</i>	—	<i>North-west</i>
<i>Capt.</i>	—	<i>Captain</i>	<i>N.W.M.P.</i>	—	<i>North West Mounted Police</i>
<i>cf.</i>	—	<i>compare with</i>	<i>N.Y.</i>	—	<i>New York</i>
<i>chap.</i>	—	<i>chapter</i>	<i>obs.</i>	—	<i>observation</i>
<i>Ching.</i>	—	<i>Chinguaconsy</i>	<i>Oct.</i>	—	<i>October</i>
<i>cit.</i>	—	<i>cited (in or by)</i>	<i>Ont.</i>	—	<i>Ontario</i>
<i>Cldn.</i>	—	<i>Caledon</i>	<i>O.S.A.</i>	—	<i>Ontario Society of Artists</i>
<i>co.</i>	—	<i>county</i>	<i>p.</i>	—	<i>page(s)</i>
<i>Col.</i>	—	<i>Colonel</i>	<i>Ph.D.</i>	—	<i>Doctor of Philosophy</i>
<i>con.</i>	—	<i>concession</i>	<i>Presb.</i>	—	<i>Presbyterian</i>
<i>Coy.</i>	—	<i>Company</i>	<i>Prof.</i>	—	<i>Professor</i>
<i>Dec.</i>	—	<i>December</i>	<i>Prov.</i>	—	<i>Provincial</i>
<i>dtr.</i>	—	<i>daughter</i>	<i>pt.</i>	—	<i>part</i>
<i>E.</i>	—	<i>East</i>	<i>pub.</i>	—	<i>published</i>
<i>ed.</i>	—	<i>edited, editor</i>	<i>R.C.A.</i>	—	<i>Royal Canadian Academy</i>
<i>edn.</i>	—	<i>edition</i>	<i>Rev.</i>	—	<i>Reverend</i>
<i>Eng.</i>	—	<i>England</i>	<i>R.O.M.</i>	—	<i>Royal Ontario Museum of Zoology</i>
<i>etc.</i>	—	<i>et cetera</i>	<i>S.</i>	—	<i>South</i>
<i>f.</i>	—	<i>facing page</i>	<i>sc.</i>	—	<i>scene</i>
<i>Feb.</i>	—	<i>February</i>	<i>S.E.</i>	—	<i>South-east</i>
<i>F.L.S.</i>	—	<i>Fellow of the Linnean Society</i>	<i>sec.</i>	—	<i>section</i>
<i>F.R.S.</i>	—	<i>Fellow of the Royal Society</i>	<i>Sept.</i>	—	<i>September</i>
<i>Gov.</i>	—	<i>Governor</i>	<i>Soc.</i>	—	<i>Society</i>
<i>ibid.</i>	—	<i>ibidem (in the same place)</i>	<i>St.</i>	—	<i>Saint</i>
<i>i.e.</i>	—	<i>id est (that is)</i>	<i>st(s).</i>	—	<i>street(s)</i>
<i>in(s).</i>	—	<i>inch(es)</i>	<i>S.W.</i>	—	<i>South-west</i>
<i>inc.</i>	—	<i>incorporated</i>	<i>Tor.</i>	—	<i>Toronto</i>
<i>inf.</i>	—	<i>information (from)</i>	<i>tr.</i>	—	<i>translated, translator</i>
<i>irreg.</i>	—	<i>irregularly</i>	<i>twp.</i>	—	<i>township</i>
<i>Jr.</i>	—	<i>Junior</i>	<i>U.</i>	—	<i>University</i>
<i>K.C.</i>	—	<i>King's Counsel</i>	<i>U.C.</i>	—	<i>Upper Canada</i>
<i>l.</i>	—	<i>line</i>	<i>U. of T.</i>	—	<i>University of Toronto</i>
<i>LL.D.</i>	—	<i>Doctor of Laws</i>	<i>vol(s).</i>	—	<i>volume(s)</i>
<i>Lt.</i>	—	<i>Lieutenant</i>	<i>V.S.</i>	—	<i>Veterinary Surgeon</i>
<i>Ltd.</i>	—	<i>Limited</i>	<i>W.</i>	—	<i>West</i>
<i>m.</i>	—	<i>married</i>	<i>yr(s).</i>	—	<i>year(s)</i>

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